Lisbon School of Economics & Management
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PROJECT

EQUITY RESEARCH CTT CORREIOS DE PORTUGAL SA: INVESTMENT IN RETAIL SOVEREIGN DEBT IN PORTUGAL AND CTT FINANCIAL SERVICES

MARIA DE MELO REBELO SAMPAIO MORGADO

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SUPERVISOR:
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Abstract

This report is conducted with the aim of investigating retail participation in sovereign debt programs through a comparison analysis of all European Union countries. The results will have consequent implications for the equity valuation of CTT Correios de Portugal, more specifically, the Financial Services Segment. The study combined a Principal Component Analysis and K-means clustering to group European Union countries in accordance with similar macroeconomic and behavioral profiles. Subsequently, a panel regression was conducted in order to reach a model that quantified the drivers of retail sovereign debt.

This methodology led to the establishment of a model with a maximum trade-off between explanatory power and forecasting feasibility. Thereafter, the share of retail sovereign debt for Portugal was forecasted for the period of 2025 to 2029.

The forecast was subsequently applied to CTT ‘s Financial Services Segment, leading to a Group price of €6.58/sh, contrasting with the previously estimated value of €7.16, thus representing a negative 8% shift.

Whilst the model shows it can reasonably forecast the share of retail sovereign debt, its results should be addressed cautiously. Further analysis demonstrated that Portugal was well above its cluster peers. This implies that the model might have underestimated the forecasted share due to Portugal’s intensive retail participation in sovereign debt.

JEL classification: G10; G32; G34; C33; C38; H63

Keywords: Equity Research; Valuation; Mergers & Acquisitions; Principal Component Analysis; Clustering; Panel Data Analysis

Resumo

O presente estudo tem como objetivo entender o grau de aderência de investigadores individuais a programas de dívida soberana, através de uma análise comparativa de todos os países da União Europeia. Os resultados possuem implicações significativas para a Avaliação dos CTT Correios de Portugal, particularmente o Segmento de Serviços Financeiros.

A investigação combinou uma Análise de Componentes Principais e um agrupamento K-means de forma a agregar os diversos países da União Europeia de acordo com perfis macroeconómicos e comportamentais semelhantes. Posteriormente, foi estimado um modelo de regressão em painel com o intuito de quantificar os principais impulsionadores da dívida soberana.

Esta abordagem levou ao desenvolvimento de um modelo que equilibra poder explicativo e viabilidade preditiva. Com base neste modelo, foi projetada a proporção de dívida soberana de retalho em Portugal para o período de 2025 a 2029.

A previsão obtida foi consequentemente aplicada na Avaliação do Segmento de Serviços Financeiros dos CTT, conduzindo a um preço por ação do Grupo de 6.58€/sh, contrastando com o valor anteriormente estimado de 7.16€, o que corresponde a uma variação negativa de 8%.

Embora o modelo mostre uma capacidade de previsão razoável da percentagem de dívida soberana de retalho, os seus resultados devem ser abordados com cautela. Uma análise mais aprofundada demonstrou que Portugal apresenta valores significativamente superiores aos dos seus pares do cluster. Isto sugere que o modelo poderá ter subestimado a percentagem prevista devido à intensa participação de investidores individuais portugueses na dívida soberana.

Classificação JEL: G10; G32; G34; C33; C38; H63

Palavras-Chave: Equity Research; Avaliação de Empresas; Fusões e Aquisições; Análise de Componentes Principais; Clustering; Análise de Dados em Painel

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Level of Risk	SELL	REDUCE	HOLD/NEUTRAL	BUY	STRONG BUY
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Disclosures and Disclaimers

AI Disclaimer

This project was developed with strict adherence to the academic integrity policies and guidelines set forth by ISEG, Universidade de Lisboa. The work presented herein is the result of my own research, analysis, and writing, unless otherwise cited. In the interest of transparency, I provide the following disclosure regarding the use of artificial intelligence (AI) tools in the creation of this project:

I disclose that AI tools were employed during the development of this thesis as follows:

- AI-based research tools were used to assist in the literature review and data collection.

Nonetheless, I have ensured that the use of AI tools did not compromise the originality and integrity of my work. All sources of information, whether traditional or AI-assisted, have been appropriately cited in accordance with academic standards. The ethical use of AI in research and writing has been a guiding principle throughout the preparation of this thesis.

I understand the importance of maintaining academic integrity and take full responsibility for the content and originality of this work.

Maria de Melo Rebelo Sampaio Morgado, 30th June 2025

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1. Introduction

Retail participation in sovereign debt markets has historically been low across most European Union countries, noting a clear dominance of institutional investors in the market. However, this trend seems to have changed in the last few years, as demand for retail sovereign debt increases is leading EU countries to re-launch retail sovereign debt programs in order to leverage from this shift in demand. This surge raises critical questions about macroeconomic and behavioral drivers and the sustainability of this demand level.

As opposed to several other EU countries, Portugal has always had a stable demand for these investment products. This phenomenon is intriguing considering Portugal's macroeconomic resemblance to European peers, gearing to the assumption that behavioral factors, such as trust in government institutions and risk-profiles, might play a bigger role than one would expect. Nonetheless, these influences remain insufficiently quantified and poorly incorporated into traditional financial analysis.

The relevance of this occurrence goes beyond academic research, since it has a direct implication in institutions that distribute retail targeted sovereign debt instruments such as CTT, namely in the Financial Services Segment (FS). In **Appendix B** it is further explained how this segment is highly dependent on the distribution of Saving Certificates and thus benefited greatly from the surge of these instruments. Moreover, changes in demand impact materially FS, influencing revenue stability and consequently, CTT's valuation.

The following chapter aims to further investigate the main drivers of retail sovereign debt demand in Portugal. To do so, a comparative analysis of all 27 EU countries will be computed as a way of understanding different country profiles and group the ones most similar to Portugal. The focus on EU countries is due to the availability of standardized macroeconomic and behavioral data and the common regulatory and economic policy that allows for a more vigorous cross-country comparison. The research applies advanced quantitative techniques, including Principal Component Analysis (PCA), k-means clustering, and panel regression modeling, to better understand hidden patterns and identify the connection between macroeconomic and behavioral indicators and household sovereign debt holdings.

The results obtained will hopefully contribute not only to academic literature but to providing practical insights pertinent to CTT's equity valuation and the FS segment strategic positioning. By integrating behavioral finance and macroeconomic analysis the following chapter offers a unique outlook on how similar economies might behave in very distinct ways when it comes to investment decisions and the subsequent implications those will have towards the valuation of CTT.

By implementing the results of this analysis, a revised price target of €6.58/sh was achieved, updating our recommendation to a REDUCE. This revised price target was obtained by updated values regarding SC as a percentage of total Debt.

2. Literature Review

Nowadays, retail sovereign debt has been on the rise as governments increase their offering to include household investors, whilst diversifying their increasing borrowings.

The macroeconomic drivers that influence financial markets, such as public debt, inflation, and interest rates, are vital for understanding asset correlations (Perego & Vermeulen, 2016), and these same drivers extend to influence household participation in sovereign debt. A higher debt-to-GDP ratio, in particular, encourages governments to increasingly rely on domestic savings in order to properly mitigate perceived sovereign risk by having a more stable investor base. The strategic focus on retail investors is highly relevant for sovereign debt management, suggesting that the incorporation of these investors can serve as a buffer during periods of higher volatility amongst institutional investors. Fang, Hardy, and Lewis (2022) further demonstrate that private non-bank investors, which includes households, absorb a substantial share (around 69%) of new government debt when issuance increases. The recent analysis from the OECD (2025) exemplifies this dynamic, showing that as governments faced high debt issuance, the share financed by retail investors in surveyed countries increased significantly from 5% to 11% between 2021 and 2024.

The relationship between inflation and household participation in retail sovereign debt is further explained by the negative effect inflation has on nominal assets (Chiang, 2023), which occurs due to the erosion of real value of a bond's fixed future payments, making it a less attractive investment.

While macroeconomic factors provide a crucial framework, behavioral drivers are as important in explaining household investment choices since they provide a broader perspective of a country's profile. Drivers like financial literacy, trust in government, demographics, amongst others have been shown to relate directly with investment decisions. For instance, financial literacy has been regularly associated with higher participation in capital markets, including more conservative securities such as government bonds (Lusardi and Mitchell, 2014). More specifically, Filippin (2025) evaluates the introduction of retail-targeted Treasury Bonds in Italy and finds that financial literacy positively influenced retail participation, highlighting how government policies can interact with household financial knowledge.

Another significant behavioral factor is trust in public institutions. Guiso, Sapienza, & Zingales (2008) established that a general lack of trust is a primary barrier to financial market participation, as investors factor in the risk of being deceived. By following this principle, a higher propensity to invest in government-backed securities can arise from increased confidence in the issuer, namely the government. More specifically, research on European households by Christelis et al. (2020) found that higher trust in a key public institution like the European Central Bank (ECB) improves public confidence in future price stability, which is crucial for nominal assets like sovereign bonds. By reducing uncertainty about future price developments, trust can lower the need for precautionary savings, thereby influencing both the decision to save and the type of investment vehicle. This is further supported by findings that trust in the ECB is highly correlated with general trust in national governments (Eickmeier & Petersen, 2024), ultimately linking confidence in economic management directly to the attractiveness of sovereign debt.

Moreover, risk aversion is closely tied to investment decision-making and could be ultimately tied to demographic characteristics. A study by Xiao (1995) on household asset portfolios provides direct evidence for this, finding that older investors tend to be more conservative in their investment behavior. Concerning household savings and its relationship with retail participation in government debt, Lusardi's (1998) study on the precautionary saving motive suggests that under future income uncertainty, driven perhaps by increasing unemployment rates and economic

uncertainty, households aim to save as a buffer, which may increase demand for safe and liquid assets like sovereign debt.

These insights provided this study with enough evidence to choose the most significant macroeconomic and behavioral variables. Nonetheless, linkage between these drivers and retail participation in sovereign debt remain somewhat limited, motivating the elaboration of a framework that could properly address this gap.

In order to properly handle the data gathered, the following methods were considered. Firstly, Principal Component Analysis (PCA) is broadly used to extract hidden structures within a large dataset of correlated variables. Stock and Watson (2002) noted the model's efficiency in condensing large macroeconomic data sets into diffusion indexes ideal for forecasting purposes. Additionally, Ding and He (2004) explored the integration of PCA as a preprocessing step before the application of a clustering method such as k-means.

The clustering technique further allows for grouping of countries with similar profiles, both from a macroeconomic and behavioral perspective (Aghabozorgi et al., 2015).

Lastly, the application of a Panel Data Regression Model required the choice between fixed and random effects estimators, which was further explored through the analysis of the coefficients under both estimators (Hausman, 1978).

The framework described offers a thorough analysis of how macroeconomic and behavioral factors influence household participation in sovereign debt. As it was previously stated, the following analysis aims to address a gap by using a combination of macroeconomic and behavioral drivers and integrating them into advanced statistical methods to further explore retail participation in sovereign debt in Portugal.

3. Methodology

3.1. Research Data, Collection, and Variables' Description

3.1.1. Research Design

This research follows an integration of an explanatory and comparative approach to further investigate the determinants of retail participation in government debt across the European Union member states.

The study progresses in three main steps:

- Consolidation of macroeconomic and behavioral variables into latent factors employing Principal Component Analysis (PCA). This strategic application will enable the clustering of countries built on coherent underlying economic and behavioral profiles.
- Segmentation using k-means clustering by sorting different EU clusters with similar profiles.
- Quantitative Analysis via Panel regression which ultimately quantifies the impact of both macroeconomic and behavioral indicators on retail sovereign debt holdings, in which the final formula will be achieved:

$$\textbf{Retail\_Debt(\%TD)}_i = \alpha + \beta_1 \times \textbf{Debt\_As\_\%\_GDP}_{k,it} + \beta_2 \times \textbf{Inflation\_(yoy Change)}_{k,it} + \beta_3 \times \textbf{Unemployment\_Rate}_{k,it} + \beta_4 \times \textbf{Household\_Savings}_{k,it} + \beta_5 \times \textbf{Trust\_in\_Government(\%)}_{k,it} + \beta_6 \times \textbf{Population\_Over\_65}_{k,it} + \beta_7 \times \textbf{EURIBOR\_3M}_{k,it} + u_i + \varepsilon_{it}$$

A panel data approach was used, covering all EU countries over the period 2014 to 2024 and enabling cross-sectional and time-series variation to be investigated simultaneously. The following analysis is centered exclusively

on European Union member states to ensure consistent data collection methodologies, standardized definitions, and a reliable comparability across macroeconomic and behavioral indicators.

3.1.2. Time Horizon

The analysis covers the period from 2014 to 2024. As Deaton (1995) argues, ten years is deemed sufficient to capture structural relationships in socio-economic paneled data since that shorter periods of time will most likely be too noisy and short term to be considered useful. Besides, longer periods might introduce issues related to how the variables were defined. This selection allowed for a broader grasp of country-specific factors and how they react under stress such as shifts in macroeconomic conditions and monetary policy, including periods of low interest rates and tightening cycles. This period also reflects household savings behavior changes following the COVID pandemic.

3.1.3. Variables Description

In order to ensure reliability and consistency, all data applied to this study was extracted from official European institutions, including Eurostat, and the European Central Bank. Furthermore, this ensures consistent comparability across countries.

The primary database used to extract macroeconomic indicators such as Real GDP Growth, Inflation Rate, Government Balance, and Demographic Data was Eurostat Data Browser. Behavioral factors were found in OECD reports as well as in quarterly Eurobarometer reports.

National Debt Management Offices and Statistical Agencies Annual Reports were accessed to obtain exact figures for country-specific household held government debt, exclusively from countries that have a Retail targeted program. Furthermore, these reports were also used for the collection of data which was lacking from the main European databases.

The dependent variable chosen for this analysis was Retail Sovereign Debt as a Percentage of Total Government Debt (RSD). For the purpose of this study, only Retail Targeted Programs were accounted to compute the total share of retail debt. The intuition behind this choice is that programs as these ones give a clearer picture of more traditional household investors as investment in non-retail targeted bonds attributes a higher level of sophistication to the investor. Annual data sourced from National Debt Management Offices (2014-2024).

Independent variables were chosen on a basis of theoretical relevance and practical findings in the literature tied to household savings behavior, and the best factors that distinguish different country profiles. These encompass both macroeconomic fundamentals and behavioral aspects which were all adjusted to yearly data.

Government Debt (Debt as a % of GDP): General Government Gross Debt relative to GDP. It measures debt burden relative to economic output. Annual data sourced from Eurostat Data Browser (2024, code SDG_17_40).

Government Balance (Government Balance): Net lending (+) or borrowing (-) of general government relative to GDP. It provides insights into fiscal sustainability. Annual data sourced from Eurostat Data Browser (2024, code TEC00127).

Inflation Year-on-Year Change (Inflation (yoy Change)): Percentage change in Harmonised Index of Consumer Prices. It captures changes in price levels, influencing real returns on sovereign debt. Inflation was included contemporaneously under the assumptions that households adjust investment behavior quickly in response to price-level changes. Annual data sourced from Eurostat Data Browser (2024, code PRC_HICP_AIND)

Unemployment Rate: Percentage of population in the labor force from 15 to 74 years. It serves as a proxy for economic stability and household income security. Annual Data sourced from Eurostat Data Browser (2024, code TIPSUN20).

Real GDP Growth: Percentage change in GDP adjusted for inflation. It indicates economic expansion or contraction and potential increases in household disposable income available to invest. Annual data sourced from Eurostat Data Browser (2024, code TEC00115).

Deposit Rate: Interest rate offered on household bank deposits with maturities of 1 year or less. It indicates the attractiveness of alternative low-risk investments. Monthly data sourced from the European's Central Bank Eurosystem Data Portal (2024, variable code MIR.M.U2.B.L22.F.R.A.2250.EUR.N adjusted for each country). Data was adjusted to annual values by averaging monthly rates.

Euro Interbank Offered Rate 3 months (EURIBOR 3M): Represents average interest rate at which eurozone banks lend funds to each other over a 3-month period. It serves as a reference to the remuneration associated with saving certificates. Annual data was sourced from European Money Markets Institute (2024).

Household Savings Rate (Household Savings): Proportion of disposable income saved by households. It serves as an indicator of potentially available investment in sovereign debt products. Annual data sourced from Eurostat Data Browser (2024, code TEC00131). European Commission Institutional Paper 318 (May 2025) and National Statistical Agencies Annual Reports were sourced for values missing from the Data Base.

Currency and Deposits (Currency and Deposits as a % of Total Financial Assets): Share of household financial assets in cash and bank deposits. It serves as a proxy of risk aversion and liquidity preferences. Annual data sourced from Eurostat Data Browser (2024, code NASA_10_F_BS_CUSTOM_17132836 (Currency and Deposits and Total Financial Assets)).

Tertiary Education (Tertiaty_Edu): Percentage of the population aged 25-64 who have completed higher education. It serves as an indicator of literacy within the population. Annual data sourced from Eurostat Data Browser (2024, code EDAT_LSFE_03).

Financial Literacy Scores: Percentage of adults who correctly answered standardized financial literacy questions. It measures directly population financial literacy. Annual data sourced from S&P Global FinLit Survey (2014) and Bruegel Report on Financial Literacy (2023).

Trust in Government (Trust in Government %): Percentage of respondents reporting confidence in the national government. It provides insights related to potential willingness to invest in government-backed financial products. Quarterly data was sources from Eurobarometer Quarterly Reports (2014-2024). Data was adjusted to annual frequency by averaging the results within the year.

Gini Coefficient: Comparison of cumulative share of income earned by population segments to a perfectly equal distribution. It measures income inequality within a country, ranging from 0 (perfect equality) to 100 (perfect inequality). Annual data sourced from Eurostat Data Browser (2024, code ILC_DI_12).

Population Over 65 (Population_Over_65): Percentage of individuals aged 65 and older within the total population. It indicates the demographic trends that are potentially influencing risk perception and savings behavior. Annual data sourced from Eurostat Data Browser (2024, code TPS00028).

Internet Access: Share of household with internet connectivity. It measures basic digital incorporation within the population, being a possible indicator of advancement of a country. Annual data sourced from Eurostat Data Browser (2024, code ISOC_CI_IN_H).

Consumer Confidence Index (CCI Standardized): Numerical balances (Positive-Negative Answers) based on standardized question about future economic prospects. It captures household sentiment regarding current economic conditions. This data was standardized using z-score standardization in order to make units unitless and comparable. Annual data was sourced from European Commission DG ECFIN's Business and Consumer Survey time series database.

3.2. Analytical Methods

3.2.1. Principal Component Analysis (PCA)

In this study, PCA was used as a strategic tool to consolidate a diverse set of macroeconomic and behavioral indicators into fewer latent elements. The goal was not fully data compression, but also to generate aggregated, explainable components that together capture wider structural patterns across the European Union, providing a strong foundation for a subsequent clustering analysis. This analysis was conducted by applying exponentially weighted moving averages (EWA) of annual data for all 27 EU countries. The EWA smoothing, with an alpha of 0.5, was employed with the objective of accentuating recent years, reflecting current trends and decreasing arbitrary annual variations. This method keeps historical depth whilst placing greater importance on recency, fully aligning with the behavioral features of household investment decision-making.

While variables such as Real GDP growth have a narrower range of variation, other variables such as Currency and Deposits (as a percentage of household financial assets) display a more pronounced variation and higher numerical values. This implies that even when variables have the same unit of measure, larger absolute values or variances could dominate the PCA due to scale. Hence, all variables used for PCA were standardized to z-scores. This standardization was limited to PCA-related computations. In order to preserve interpretability in subsequent analysis, almost every variable but CCI was kept on original measurement units.

The data adequacy for PCA was tested through two diagnostic tests. First, Bartlett's Test of Sphericity, in order to confirm the existence of sufficient intercorrelations amongst variables, with a significance threshold of $p < 0.05$ was required. Second, Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy, setting the threshold of 0.6, commonly used as a benchmark for adequacy in line with Kaiser guidelines. Additionally, the determinant of correlation matrix was computed to reinforce the adequacy of the data for this method. A very low determinant could undermine the PCA assumption, suggesting multicollinearity.

The proper number of components to retain was then decided by four main criteria: (1) achieving a cumulative variance of 70%, according to practical applications of PCA, (2) visual interpretation of the scree plot, in order to recognize the point past which additional components contribute relatively less to explanatory value, (3) assuring consistency with Kaiser criterion, which advices to simply retain components with eigenvalues higher than 1, (4) guaranteeing a clear interpretability of components for following analysis.

During initial testing, an iterative computational approach was implemented since that initial testing showed that several variables presented low individual KMO values, demonstrating possible unsuitability to be included in the PCA model. Several subsets were tested for adequacy and performance in PCA. For each one of those, a

subsequent preliminary k-means clustering analysis was computed on retained components, using silhouette score as a metric for clustering quality. To do so a conservative silhouette threshold of 0.4 was adopted. This value, albeit mediocre, served as minimum criterion, considering the high dimensionality implicated in a cross-country analysis and the modest sample size.

The final principal components were then used as input features for k-means clustering, allowing countries to be gathered based on macroeconomic and behavioral profiles.

3.2.2. K-Means Clustering

After the completion of the PCA, k-means clustering was used to group EU countries with similar macroeconomic and behavioral profiles. This method was employed by using the outputs of the PCA as inputs.

To determine the ideal number of clusters (k), two diagnostic tests were used. First, the Elbow Method, in which the within-cluster sum of squares (WCSS) was plotted across 2 to 9 k values, revealing the optimal k at the point where the marginal gain in clustering performance starts to decrease. This ultimately implies limited additional explanatory power. Second, a Silhouette Analysis, in which average silhouette scores were calculated for each cluster (k) to assess how well the limits of each group were defined within the assigned k. Even though a threshold of 0.4 was applied in the previous method, a new threshold of 0.5 was applied in order to meet the minimum level to be considered a well-defined and separated cluster (>0.5).

Furthermore, hierarchical clustering using Ward's linkage method was computed as a robustness check. This approach allowed for a comparative analysis of the clustering stability as well as visual insights through dendrograms. Minor differences were noted in specific country groupings however, the results mainly supported the segmentation obtained in the k-means solution.

The final output of this method was used to analyze common characteristics amongst countries. Moreover, the results clearly identified Portugal's clusters which were subsequently used as a data set for a panel data regression model, aimed at forecasting retail participation in sovereign debt based on macroeconomic and behavioral factors for a specific group of countries.

3.2.3. Regression Analysis

Following the cluster definition, several panel regression models were obtained with the intuition of understanding key drivers of retail participation in sovereign debt and developing a forecast for Portugal. For this step, simply the cluster in which Portugal was inserted was considered and countries with no retail targeted sovereign debt programs were removed to avoid an underestimation of total average share of household held government debt amongst the cluster.

All data previously referred was included in an initial model with retail participation in sovereign debt as the dependent variable. To properly filter these variables, they were evaluated based on multicollinearity through Variance Inflation Factors (VIF), removing those with VIF > 5 for better model stability. Additionally, variables with no statistical significance (p-value>0.05) were removed iteratively.

An initial model including all candidate variables was estimated however, the final model used in the context of this study was chosen based on a trade-off that maximizes explanatory power, whilst guaranteeing forecasting feasibility.

Additional diagnostic tests were carried out to ensure the validity of the model. Breusch-Pagan test was used to assess heteroskedasticity, with robust standard errors subsequently applied whenever homoskedasticity was rejected. Although panel data usually requires fixed effects to control unobserved heterogeneity, the Hausman test was conducted to guide the choice between Fixed Effects and Random Effects. Considering the outcome of the test as well as the goal of reaching a model with forecast application, the preferred estimation method was Random Effects.

All previous statistical analysis was conducted in Python, in which flexibility was provided to allow for iterative refinement and selection of variables according to both statistical filtering and theoretical insights.

4. Data Analysis and Exploratory Techniques

4.1. Principal Component Analysis (PCA)

According to the methodological framework previously described, PCA was conducted as a preliminary step covering 27 EU countries from 2014 to 2024.

An assessment of individual KMO scores was conducted in **Appendix 1** and revealed significant variability of scores amongst variables, motivating the adoption of the aforementioned iterative computational approach.

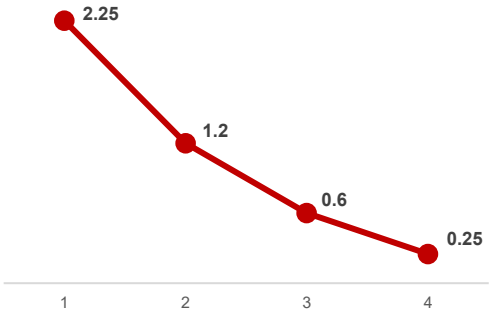
Through the already defined framework, the subset composed of the variables *Real GDP Growth*, *Household Savings*, *Financial Literacy Scores*, and *Trust in Government* was ultimately retained for PCA and subsequent clustering.

The data's suitability was confirmed by the diagnostic testing. First, Bartlett's Test of Sphericity yielded a significant result: Chi-Square = 207.15, $p<0.000$. Second, KMO Measure of Sampling Adequacy stood at 0.6144, demonstrating moderate adequacy. The determinant of the correlation matrix was 0.333, showing no multicollinearity concerns.

PCA was then conducted on this subset. Moreover, a visual analysis of the scree plot in **Figure 1** showed a clear 'elbow' after the second component, suggesting decreasing marginal returns from added components. This was further supported by the Kaiser criterion, which suggests only retaining components with eigenvalues above 1. Hence, the decision was made to retain only two principal components for subsequent analysis. This choice balances both statistical accuracy and facilitated interpretability.

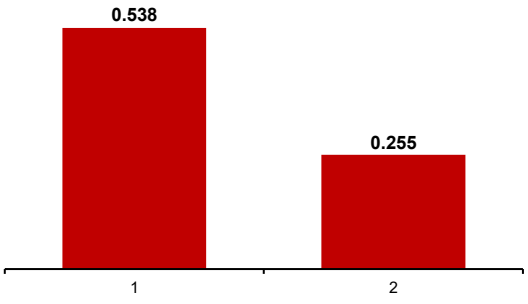
The final PCA results for the two components were as follows in **Figure 2**, with cumulative variance explained of 79.3% (>70%).

Figure 1- Scree Plot for PCA



Source: Own Elaboration

Figure 2- Variance Explained by First 2 PCs



Source: Own Elaboration

The component loadings matrix is presented in **Table 1** and is clearly divided into two orthogonal components:

- Principal Component 1 (PC1) captures a combination between behavioral and financial orientation, defined by higher levels of financial literacy, more household tendency for savings, and trust in government. Countries which attain a higher score on this component usually show stronger savings cultures and higher government trust.

- Principal Component 2 (PC2) is almost entirely driven by Real GDP growth, reflecting a macroeconomic growth dimension. Countries which score higher in this component are defined by more dynamic economic performance, largely distinct from behavioral indicators.

Table 1- Component Loadings Matrix

Loadings	PC1	PC2
Real GDP Growth	-0.102	0.970
Household Savings	0.559	0.069
Financial Literacy Scores	0.619	-0.090
Trust in Government (%)	0.542	0.215

Source: Own Elaboration

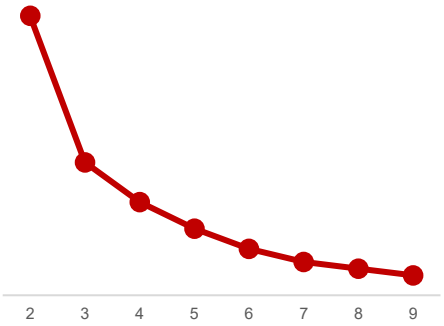
While PC2 is almost fully dominated by Real GDP Growth, this result demonstrates that GDP Growth behaves independently from behavioral factors included in the dataset. Although dimensionality for this variable was not reduced through the PCA, the outcome confirms that economic growth denotes a distinct, orthogonal factor in household investment behavior context. This finding alone validates the retention of PC2 as a distinct component rather than incorporating it into a mixed factor alongside behavioral factor. Furthermore, maintaining Real GDP Growth almost as its own axis facilitates subsequent clustering.
These results showed that PCA is suitable as a tool for dimensionality reduction. While PC1 and PC2 are rather simplified, they provide an interpretable basis for subsequent k-means clustering, enabling proper segmentation of EU countries into clusters with similar macroeconomic and behavioral profiles.

4.2. K-Means Clustering

Following the PCA results, PC1 and PC2 were used as inputs for k-means clustering analysis in order to identify groups within the European Union which shared similar macroeconomic and behavioral profiles.

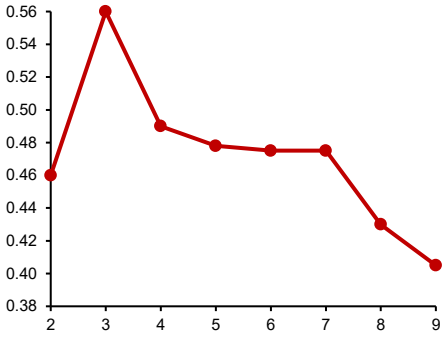
For the purpose of validating quality of the clustering, several steps were taken.
First, the optimal k selection was determined based on two diagnostic tests as stated on the Methodology section. The Elbow Method, represented in **Figure 3**, indicated fading returns in within-cluster variance reduction after k=3. The Silhouette Analysis, shown in **Figure 4**, presented a silhouette coefficient of 0.5642 for k=3, the highest coefficient observed in the plot which complies with the minimum threshold for a well-defined clustering. Hence, the optimal choice was deemed k=3, ensuring better cluster interpretability and consistency across all diagnostics.

Figure 3- Elbow Method K-means



Source: Own Elaboration

Figure 4- Silhouette Scores K-means



Source: Own Elaboration

Following the decision to use k=3, a visual analysis via PCA scatter plot in **Figure 5** and showed significant separation between the following clusters:

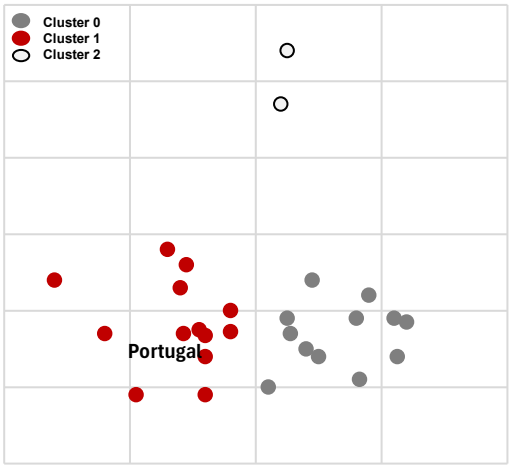
- **Cluster 0 (Northern and Western European Countries),** which is compiled of countries that scored higher on PC1, showing stronger financial literacy, higher household savings rates and increased trust in the government. Economically, several of these countries show stable, albeit moderate Real GDP growth rates. This cluster suggests countries with better stablished savings culture and higher confidence in public institutions, leading to more informed investment decisions.

- **Cluster 1 (Southern and some Eastern European Countries),** which includes countries that scored lower on PC1 with relatively lower trust in government and financial literacy with moderate savings rates. Economically speaking, these countries demonstrate more diverse performance, with Real GDP Growth converging more towards the European Union average. The behavioral profile associated with this cluster is shaped by more varied sentiments toward public institutions, shaping investment decisions to be more cautious and perhaps indicating a more reactive retail participation in sovereign debt dependent on macroeconomic changes. Portugal is inserted within this cluster.

- **Cluster 2 (Ireland and Malta),** which is distinguished by significantly higher scores on PC2, showing higher Real GDP Growth than the EU average. These countries show high trust in government as well as high financial literacy scores, demonstrating a profile with a sturdy economic performance alongside strong behavioral fundamental. However, it is worth noting that the cluster is significantly small, suggesting some caution whilst generalizing its patterns.

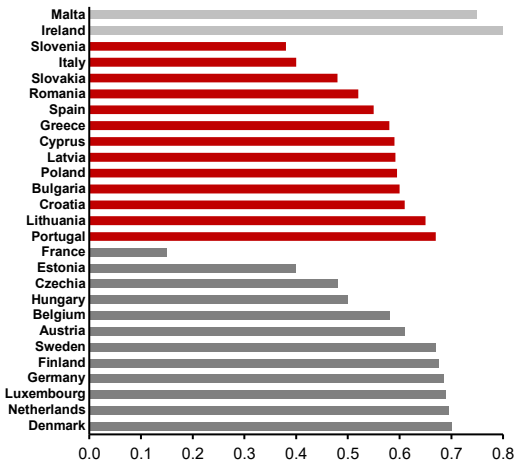
Moreover, silhouette coefficients by country can be seen in **Figure 6**. It is possible to see that most countries showed values above 0.5, demonstrating moderate to high clustering quality. It is worth noting that Portugal presents a strong silhouette coefficient of 0.67 compared to other countries within its cluster, indicating that its profile of macroeconomic and behavioral drivers is highly representative of that group. On the other hand, the analysis also shows several countries with mixed profiles. For instance, France, Slovenia, and Italy with scores of 0.15, 0.40, and 0.42, respectively, display the lowest scores, indicating that these countries lie near the boundary between the two clusters.

Figure 5- PCA Scatter Plot Divided by Cluster



Source: Own Elaboration

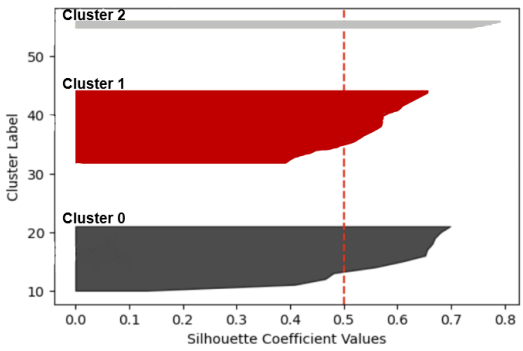
Figure 6- Silhouette Coefficient by Country and Cluster



Source: Own Elaboration

After the clusters were clearly defined, further cluster validity was assessed through the overall silhouette plot in **Figure 7**, which indicated an oddly high silhouette value for Cluster 2 considering its composition. This suggests that the profile observed is most likely attributed to country-specific profiles rather than a broad representative group. Cluster 0 and 1 demonstrate a wider silhouette distribution, composed of mostly countries with silhouette coefficients above 0.4, further suggesting generally good separation. It is worth noting that no negative silhouette values were observed, demonstrating the absence of relevant misclassification.

Figure 7- Silhouette Plot for K-means Clustering



Source: Own Elaboration

To further verify the reliability of the k-means clustering, Ward's hierarchical clustering was computed as a robustness check, and the results can be checked in **Appendix 2**. The silhouette score plot alongside the visualization of the dendrogram showed the existence of similar clusters than those obtained by k-means, with slight changes in specific country allocations, which can be verified in **Appendix 3.**

K-means clustering was able to identify significant country groupings, merging statistical legitimacy with high interpretability. The main goal of this process was to group European Union countries with similar macroeconomic and behavioral profiles, with focus on the cluster in which Portugal is included. For the subsequent panel regression analysis, only this cluster will be considered to ensure that the econometric modelling will be focused on similar country profiles. This approach is applied to increase relevance of the results by assessing more homogeneous groups.

Despite the small size of Cluster 2, the following regression analysis will solely focus on the cluster that contains Portugal, mitigating concerns that might have arisen in terms of statistical robustness.

4.3. Regression Analysis

The analysis started by producing a panel regression model with all raw variables described previously for the cluster of countries in which Portugal was included in **Table 2**. Moreover, countries which did not have any retail-targeted sovereign debt program such as Bulgaria, Greece, Slovakia, and Spain, were removed to improve the accuracy and relevance of the results. The goal of this initial model was to fully grasp the potential relationships between RSD and all independent variables included in the dataset.

Table 2- Panel Regression Model with All Variables

Independent Variables	Coefficients	P-value
Constant	-0.1910	0.0237
Debt as a % of GDP	0.0275	0.0025
Government Balance	0.1011	0.3846
Inflation (yoy Change)	-0.1334	0.0905
Unemployment Rate	-0.6179	0.0000
Real GDP Growth	0.0528	0.4571
Deposit Rate	1.2078	0.0001
Household Savings	0.1236	0.0771
Currency and Deposits as a % of Financial Assets	0.2717	0.0000
Tertiary_Edu	-0.0188	0.6308
Financial Literacy Scores	-0.0928	0.0198
Trust in Government (%)	0.1727	0.0000
Gini Coefficient	0.2832	0.0226
Population_Over_65	1.0811	0.0000
Internet Access	-0.2433	0.0003
CCI Standardized	-0.0062	0.0558
EURIBOR	0.147	0.6120
Model Validity		
Number of Observations	99	
Countries	9	
Time Periods	11	
F-statistics (robust)	22.405	
p-value (F-statistics)	0.0000	
R-squared	0.8130	

Source: Own Elaboration

Through the Breusch-Pagan test, heteroskedacity was detected (LM=0.0523, p-value=0.000) and thus, robust standard errors were used in all subsequent regression in order to guarantee that coefficient estimates remain reliable.

Following the analysis of this initial model, all variables were assessed based on multicollinearity and statistical significance according to the criteria mentioned in the Methodology Section.

An explanatory model, which is shown in **Appendix 4**, was derived with the goal of retaining all statistically significant variables and for that purpose Unemployment Rate was kept even despite VIF slightly above 5. All VIF Scores for the three models mentioned are in **Appendix 5**. Moreover, this variable contains theoretical significance as it can be

a potential driver of investment behavior as well as household savings. Nonetheless, the explanatory model was not adequate for practical forecasting due to challenges related to obtaining reliable future projections and in the spirit of maintaining forecasting accuracy, the model was further simplified.

The final model kept seven significant variables, two of which had not been part of the earlier explanatory model but were included in the forecasting model due to their statistical strength and theoretical relevance. This final model was used as the basis to project future retail sovereign debt in Portugal. The variables that were considered to influence RSD participation were:

- **Debt as a % of GDP** showed a positive coefficient, showing a proportional relationship with the dependent variable and implying that higher public debt might be linked to greater retail investor participation. This possibly reflects the increased government need to attract retail investors in higher debt issuance periods.
- **Inflation (yoy Change)** showed a negative coefficient, indicating that periods of higher inflation could deter retail participation in government debt, most likely due to concerns over real returns.
- **Unemployment Rate** displayed a significant negative coefficient, showing that higher unemployment possibly will lead to less household disposable income available to invest in sovereign debt.
- **Household Savings** resulted in a negative coefficient as well. This might indicate investor preference for alternative low-risk securities.
- **Trust in Government (%)** showed a positive coefficient, supporting the idea that higher trust in the government will make households more willing to invest in retail-targeted sovereign debt.
- **Population Over 65** had a positive coefficient as well, which suggests that older demographics have a similar risk preference.
- **EURIBOR 3M** exhibits a positive coefficient as well, implying that larger market interest rates could lead to greater retail participation in sovereign debt, most likely due to more attractive rates.

This result provides a sound foundation to better understand the main drivers of retail sovereign debt participation, while keeping the necessary practicality for forecasting applications.

5. Results

The final specification aims to properly explain the diverse factors that influence retail participation in sovereign debt and to provide a feasible model to forecast such variable for future years.

The final model, albeit more simplified, shows good explanatory capacity with an overall R-squared of 0,6144, which indicates that around 61.44% of the variation of retail participation in sovereign debt is explained by the macroeconomic and behavioral factors selected. All variables show a statistically significant coefficient as the 5% level, except for Inflation (p-value=0.0521). However, this variable is kept in the model due to its theoretical relevance and strong contribution to the model's fit. Moreover, F-statistics test was significant ($p<0.000$), further ensuring overall model validity.

Table 3 shows the estimated coefficients of the final model alongside the tests that show model significance.

Table 3- Final Model Results

Independent Variables	Coefficients	p-values
Constant	-0.1064	0.0003
Debt as a % of GDP	0.0523	0.0000
Inflation (yoy Change)	-0.1836	0.0521
Unemployment Rate	-0.1709	0.0478
Household Savings	-0.1598	0.0000
Trust in Government (%)	0.2090	0.0000
Population_Over_65	0.3030	0.0178
EURIBOR_3M	0.5977	0.0368
Model Validity		
Number of Observations	99	
Countries	9	
Time Periods	11	
Hausman Test	p-value=0.98 → **Random Effects Selected**	
Breusch-Pagan Test	LM Stat: 20.12 (p-value=0.0172) → **Heteroskedasticity Detected**	
F-statistics (robust)	18.90	
p-value (F-statistics)	0.0000	
R-squared	0.6144	

Source: Own Elaboration

The regression equation derived from this model is as follows:

Retail_Debt(% TD) $_t$ = -0.1064+ 0.0523 x **Debt_As_%_Of_GDP** $_t$ – 0.1836 x **Inflation_(yoy Change)** $_t$ – 0.1709 x **Unemployment_Rate** $_t$ – 0.1598 x **Household_Savings** $_t$ + 0.2090 x **Trust_in_Government(%)** $_t$ + 0.3030 x **Population_Over_65** $_t$ + 0.5977 x **EURIBOR_3M** $_t$

By inserting the forecasted input for Portugal into the equation, the expected share of retail debt on sovereign debt is shown **below**:

Table 4- Share of Retail Debt Forecast

Year	2025	2026	2027	2028	2029
Debt as a % of GDP	91.80%	90.30%	88.80%	87.10%	85.40%
Inflation (yoy Change)	2.3%	2.1%	2.0%	2.0%	2.0%
Unemployment Rate	6.50%	6.40%	6.30%	6.20%	6.00%
Household Savings	11.8%	11.6%	11.1%	10.4%	9.7%
Trust in Government (%)	43%	43%	45%	45%	45%
Population_Over_65	24%	24%	24%	24%	24%
EURIBOR_3M	2%	2%	2%	2%	2%
Retail Debt as a % of TD	8.2%	8.2%	8.8%	9.0%	9.2%
Saving Certificates as a % of TD	5.8%	5.7%	6.2%	6.3%	6.4%

Source: Own Elaboration

The inputs used for Government Debt (% GDP), Inflation (yoy Change), Unemployment Rate, and Household Savings were all extracted from the economic expectations report for 2025-2029 from Conselho das Finanças Públicas, released in April 2025. Population_Over_65 was forecasted according to Eurostat projections for Portugal. Trust in Government was assumed to remain at the 2025 level (extracted from Eurobarometer Spring 2025) for two years due to the current period of political uncertainty and then stabilize at 45% to reflect the trust level average from the last years, under the assumption of eventual normalization of trust as observed in previous election cycles. Lastly, due to lack of forecasting figures for EURIBOR 3M, it was assumed the forward EURIBOR 3M rate as the best available proxy, which was extracted from Chatham Financial Database.

The forecasts achieved show a moderate increase in retail participation in Portugal, moving from 8.2% in 2025 to 9.2% by 2029. Even considering the decrease in government debt, the increase in Trust in Government and Population Over 65 shows to be very strong coefficients that could counterbalance such decrease. Furthermore, Household Savings, Unemployment Rate, and Inflation are expected to decrease, contributing to the overall increase in the dependent variable.

The forecasted previously conducted will be used to analyze the subsequent impact on Saving Certificates subscription in Portugal and its impacts in CTT's target price.

6. Discussion

The results obtained from this study confirm that both macroeconomic and behavioral factors serve as a driver for retail sovereign debt participation across countries from the European Union.

Higher retail debt holdings were tied to greater Debt-to-GDP ratios, consistent with the literature studied before that implies government reliance in retail debt holding when fiscal pressure occurs (Fang, Hardy, and Lewis, 2022; OECD, 2025). Inflation negatively impacted retail holdings, further confirming that under instability, concerns over real value arise (Chiang, 2023).

Furthermore, unemployment rates also affected retail holding negatively. This might be further addressed through the link between lower disposable income and a household's inability to invest.

Lusardi (1998) infers that the precautionary motive to save increases under economic uncertainty, however unemployment's negative effect on the investment of retail sovereign debt might indicate that the income loss outweighs the desire to allocate funds to a low-risk investment. Moreover, household savings negative relationship with the dependent variable showed to be inconsistent with the literature suggesting that households might prefer alternative low-risk securities, like bank deposits. The combination of these results stresses the complex interaction between ability to save and the actual investment behaviour under economic uncertainty.

Trust in government appeared as a strong positive driver, further supporting that institutional confidence boosts investment in government-backed securities (Guiso, Sapienza, & Zingales, 2008; Christelis et al., 2020).

On the other hand, the share of population over 65 was positively related with retail participation in sovereign debt, which was supported by literature that demonstrated that older demographics have higher risk aversion and favor safer investments such as government-backed investments (Xiao, 1995). EURIBOR 3M also displayed a positive relationship with retail debt, showing that increasing market rates might improve sovereign debt products' attractiveness by offering more competitive returns compared to other savings vehicles. Some retail sovereign products' remunerations are also tied to this rate, which further justifies the positive effect.

The results mostly align with the literature review conducted while showing some slight inconsistencies, namely related to savings preferences. This highlights the complexity of the relationship between macroeconomic and behavioural drivers in retail sovereign debt.

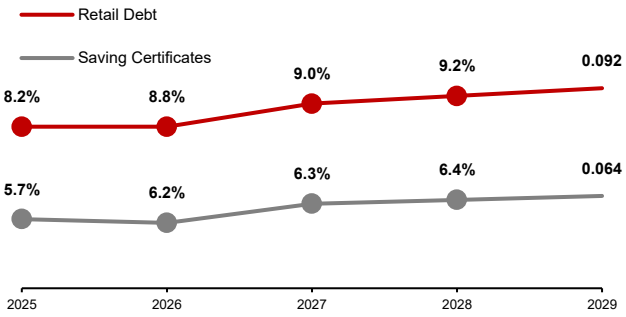
7. Conclusion

This research aimed to identifying the main macroeconomic and behavioral drivers of retail participation in sovereign debt through a comparative analysis of the European Union countries with subsequent convergence to similar country-profiles to Portugal. Through the combination of Principal Component Analysis, K-means clustering, and panel regressions, this analysis resulted in a statistically relevant and interpretable framework with the aptitude of being both explanatory and feasible for forecasting.

The final regression model demonstrates moderate explanatory power with an R-squared of 0.6144. From this model, seven variables were considered relevant as potential drivers of retail participation in sovereign debt. The aforementioned variables were Government Debt as a % of GDP, Inflation, Unemployment Rate, Household Savings, Trust in Government, share of Population over 65, and the EURIBOR-3M rate. The resulting forecast for Portugal indicates a slight increase in retail sovereign debt from 8.2% in 2025 to 9.2% in 2029, mostly reflecting projected decreases in both savings and unemployment alongside an increase in institutional trust.

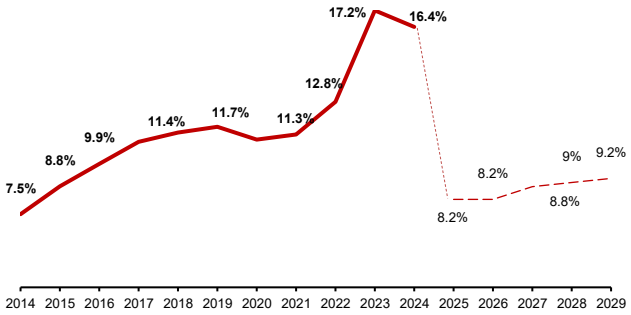
The final values attributable to Retail Sovereign Debt were integrated into CTT's valuation, with a small decrease on that value accounting for the share of retail debt dedicated to Saving Certificates alone. This decrease of 30% was assumed based on historical retail debt allocation per security and is represented in **Figure 8.**

Figure 8- Retail Debt and Saving Certificates Forecast (as a % of Government Debt)



Source: Own Elaboration

Figure 9- Portugal's Retail Debt Evolution (as a % of Government Debt)



Source: Own Elaboration

CTT's adjusted valuation resulted in a target price of €6.58/sh with an upside potential of -3.5% which according to the defined recommendation systems, updates the recommendation to a Reduce under a medium-risk profile.

Results for retail participation in sovereign debt in Portugal seem oddly low compared to the historical average of 12% showed in **Figure 9** and thus, further testing was conducted. As shown in **Appendix 6**, Portugal has consistently demonstrated higher percentage of retail sovereign debt than its cluster peers, suggesting that it incurs specific country factors beyond the scope of this model. This observation serves as an indicator that Portugal's unique characteristics may sustain higher retail sovereign debt participation than its clusters peers, advising on caution when assessing forecasted values. Nonetheless, the cluster average also allows us to see a significant increase in retail participation in sovereign debt in the last two years. This might indicate a possible shift of European

Union countries' government debt allocation, which could ultimately reduce the substantial divergence between Portugal and its cluster average.

An alternative approach to the one conducted would be to consider Portugal as a stand-alone case to more accurately identify the unique characteristics that lead to such a discrepancy in results.

Beyond its academic contributions, this research proposes several practical implications for companies in the same line of business as CTT's Financial Services segment as well as government debt agencies. For CTT, these findings highlight the importance of a diversified Financial Services' segment that does not rely heavily on demand for Saving Certificates, mitigating the impact of shifts in policy. Moreover, it was reinforced the relevance of behavioral factors as drivers of adherence to retail sovereign debt, which might be further explored by the company through campaigns that target its key clientele: older demographics with higher risk aversion as well as higher trust in public institutions, namely the government. For government debt agencies, this study offers crucial insights into the main the drivers of retail participation in sovereign debt, showing that fostering public trust in the government can be as relevant as offering competitive rates. Ultimately, this project provides a comprehensive model to valuing CTT's Financial Services Segment that incorporates both macroeconomic and behavioral levers, validating the revised price target of 6.58€/sh and the updated Reduce recommendation.

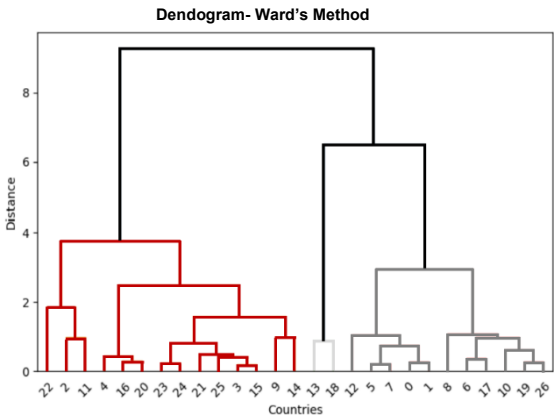
Appendices

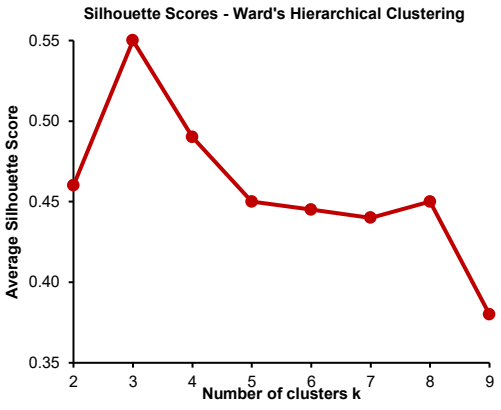
Appendix A: Complementary Analysis of the Research

Appendix 1: Individual KMO Scores

Independent Variables	KMO Score
Inflation (yoy Change)	0.79
Trust in Government (%)	0.78
Household Savings	0.75
Internet Access	0.75
EURIBOR_3M	0.71
CCI Standardized	0.69
Financial Literacy Scores	0.64
Currency and Deposits as a % of Financial Assets	0.63
Deposit Rate	0.63
Tertiary_Edu	0.61
Unemployment Rate	0.60
Government Balance	0.58
Real GDP Growth	0.57
Gini Coefficient	0.54
Debt as a % of GDP	0.45
Population_Over_65	0.33

Appendix 2: Ward's Hierarchical Clustering Robustness Check





Appendix 3: Comparison Between Clusters from K-means and Ward

Clusters	K-Means Clustering	Ward's Method
Cluster 0	**France**, Estonia, Czechia, Hungary, Belgium, Austria, Sweden, Finland, Germany, Luxembourg, Netherlands, Denmark	Estonia, Czechia, Hungary, Belgium, Austria, Sweden, Finland, Germany, Luxembourg, Netherlands, Denmark
Cluster 1	Romania, Bulgaria, Greece, Cyprus, Lithuania, Poland, Portugal, Croatia, Latvia, Slovenia, Slovakia, Spain, and Italy	**France**, Romania, Bulgaria, Greece, Cyprus, Lithuania, Poland, Portugal, Croatia, Latvia, Slovenia, Slovakia, Spain, and Italy
Cluster 2	Ireland and Malta	Ireland and Malta

Appendix 4: Explanatory Model

Independent Variables	Coefficients	p-values
Constant	-0.2194	0.0045
Debt as a % of GDP	0.0381	0.0000
Unemployment Rate	-0.5700	0.0000
Deposit Rate	1.0707	0.0000
Currency and Deposits as a % of Financial Assets	0.2798	0.0157
Financial Literacy Scores	-0.0523	0.0000
Trust in Government (%)	0.1634	0.0000
Gini Coefficient	0.2262	0.0244
Population_Over_65	1.1414	0.0000
Internet Access	-0.2361	0.0000
Model Validity		
Number of Observations		99
Countries		9
Time Periods		11
F-statistics (robust)		32.017
p-value (F-statistics)		0.0000
R-squared		0.7870

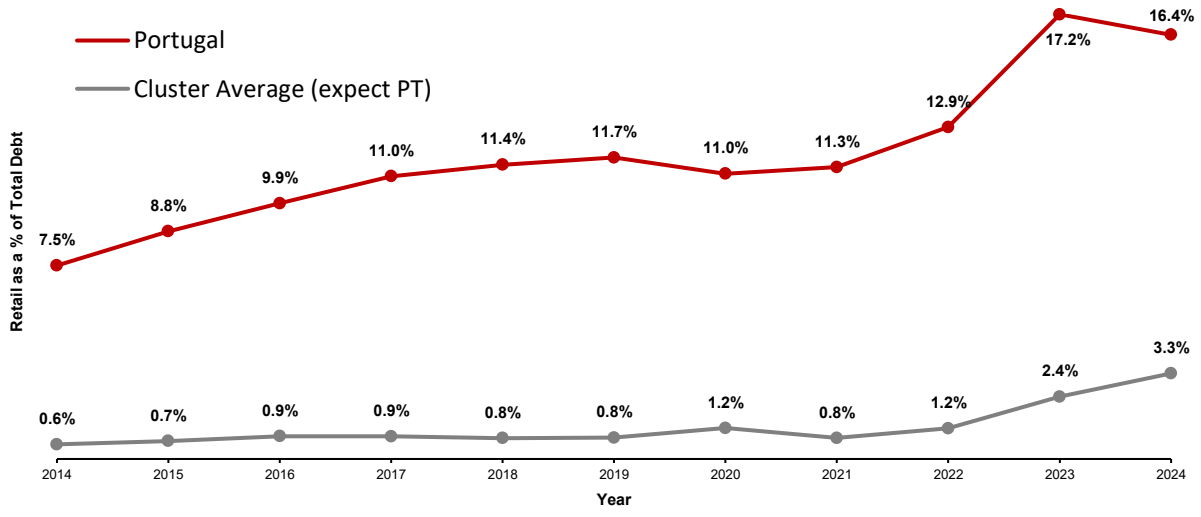
Appendix 5: Scores for all Regression Models

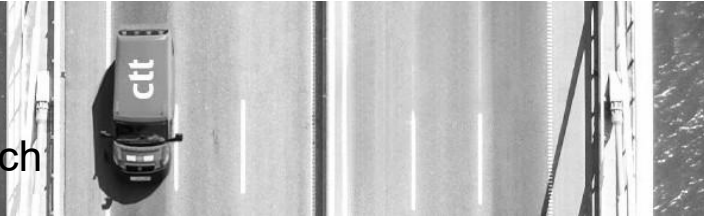
Variable	VIF Scores All Variables
Debt as a % of GDP	4.49
Government Balance	2.30
Inflation (yoy Change)	3.62
Unemployment Rate	6.60
Real GDP Growth	1.60
Deposit Rate	4.02
Household Savings	6.48
Currency and Deposits as a % of Financial Assets	4.02
Tertiary_Edu	4.83
Financial Literacy Scores	3.98
Trust in Government (%)	2.59
Gini Coefficient	5.51
Population_Over_65	5.65
Internet Access	5.90
CCI Standardized	2.32
EURIBOR	5.74

Variable	VIF Scores Explanatory Model
Debt as a % of GDP	3.65
Unemployment Rate	5.63
Deposit Rate	1.19
Currency and Deposits as a % of Financial Assets	3.21
Financial Literacy Scores	1.97
Trust in Government (%)	2.00
Gini Coefficient	3.61
Population_Over_65	3.30
Internet Access	3.50

Variable	VIF Scores Final Model
Debt as a % of GDP	2.18
Inflation (yoy Change)	2.08
Unemployment Rate	1.99
Household Savings	1.61
Trust in Government (%)	1.27
Population_Over_65	1.65
EURIBOR	1.79

Appendix 6: Retail Sovereign Targeted Debt- Historical Average Comparison





CTT's Value Through Sovereign Distribution: A Closer Look at Financial Services

Investment Summary

CTT Group Equity Value	€k	€/sh.
Equity Value by Segment		
Logistics (Mail + Express & Parcels)	472,223	3.48
Financial Services	181,586	1.34
Real Estate (73.7% stake)	113,086	0.83
Banco CTT (91% stake)	139,372	1.03
Adjustments	-187,343	-1.38
Expected Net Value from the acquisitions	81,507	0.60
Estimated Equity Value	**969,931**	**7.16**
Current Equity Value	924,173	6.82
Upside / Downside	5.0%	0.00
Recommendation	**HOLD**	

Figure 10- CTT Group Equity Value
Source: Team Analysis

HOLD is our recommendation for CTT – Correios de Portugal, SA with a price target of €7.16/sh for 2025YE using a DCF model, with a Sum-of-the-Parts (SoP) approach. Our forecast implies a 5.0% upside from March 10th, 2025, closing price of €6.82/sh, with a medium risk. Despite the timid upside, additional value can be unlocked with recent transactions beyond our base case. Our recommendation is based on the following pillars: (i) notable Courier, Express, and Parcel (CEP) potential from Iberia, (ii) the declining nature of the traditional yet regulated Mail business, (iii) uncertainty surrounding cost reduction strategies and the diversification impact of Banco CTT and Financial Services segments.

Financial Services: Saving Certificates as a Driver of Revenue

The FS division combines mainly the savings and insurance products. This segment has proved to be highly profitable, with an EBIT margin of 45%-51% in the last five years. The advantage is leveraging on the cost allocation to the mail business (recording low costs c.27% OPEX/Revenues) and the strong brand recognition amongst the Portuguese population. Yet Revenues can be highly volatile since the sales of those products are highly linked to market conditions. In 2024 we expect -53% Revenues due to the high deposit interest rates competing with a rate currently at a cap of 2.5% for Saving Certificates as well as government-imposed caps on subscriptions per savings account. In addition, the segment faces pressure arising from IGCP's decision to liberalize the market. This liberalization was immediately followed by the entry of Banco BIG, and our valuation was adjusted to address the eminent threat of possible new entries, fragmenting the market. Moreover, the rising of the digitalization has put some additional pressure in FS due to the potential altercation of market dynamics. However, CTT has perceived this transition as an opportunity and has been gradually increasing its digital offering through the development of an app for the distribution of Saving Certificates.

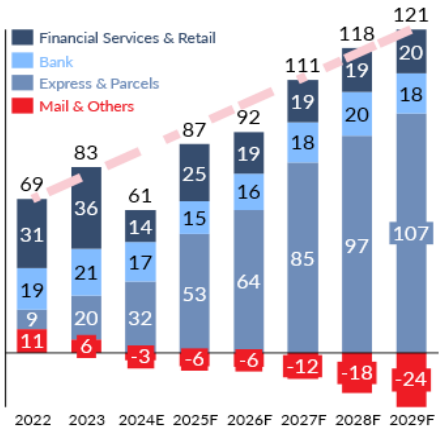


Figure 11- EBIT Contribution by Segment
Source: Team Analysis

E&P- Promising Future and M&A

CTT's focus on the expansion in Iberian e-commerce is clear especially considering the recent acquisition of the Spanish CACESA and the announcement of the Joint Venture with DHL for Iberia in December 2024. Both transactions are estimated to yield a net value of €81.5M (€0.60/sh). These deals are expected to increase the EBIT margin to 12.4% by FY29, contributing for the growth of the highest contributor for CTT's growth in the forecasted years.

Mail- Cost Center and Declining Business

A key challenge for cost reduction strategies lies in the company's heavy reliance on its mail infrastructure and network, making it difficult to transition away from this entrenched business model, particularly in Portugal. Mail-related costs, are largely influenced by agreements with Portuguese regulatory authorities, limiting CTT's ability to optimize its cost structure. We anticipate that the company will face significant challenges in executing its cost-reduction strategy.

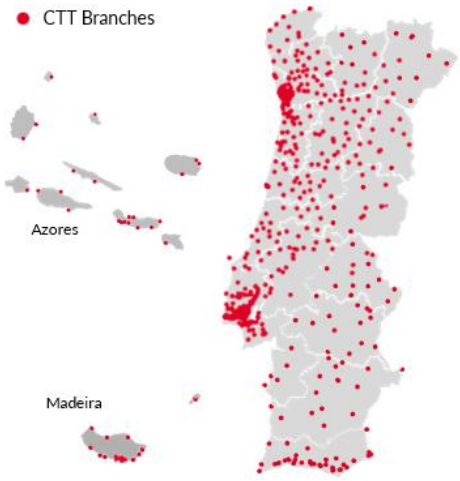


Figure 12- CTT's Portuguese Network
Source: Team Analysis

Banco CTT- Realigning Strategic Focus

The growth potential of Banco CTT remains limited and thus CTT's management has conveyed a clear strategic direction that poses the Bank as an acquisition target. Generali acquired an 8.7% stake in Banco CTT in November 2024 as part of a strategic partnership with CTT Group that includes an insurance distribution agreement with the Financial Services Segment. CTT presents itself as open to further negotiations.

Retail Sovereign Debt: Macroeconomic and Behavioral Drivers Behind SC Demand

Considering Financial Services' contribution to the Group, a higher focus was put in understanding the widespread investment in Saving Certificates in Portugal, which represent the segment's main revenue driver. These certificates are by no means the most profitable investment in the market however, it is safe to say that they are one of the most desired by Portuguese investors. Considering the substantial flow of this low-risk and government-backed instrument, it is safe to assume that demand is not only driven by economic context but by behavioral factors as well.

To further explore this, an additional chapter in which a comparative EU-level analysis of both economic and behavioral factors is considered was done. This phenomena will be explored and

additional insights into the effect that these factors have on CTT's performance will be disclosed, in order to shed some lighting on what should be expected on a comparative basis.

Business Description

CTT – Correios de Portugal is a Portuguese logistics operator, primarily focused on the delivery of mail and parcels, with complementary business in the financial services industry. The company is composed of the Mail, Express and Parcels, and Financial Services Segments alongside its subsidiary Banco CTT, which was established in 2016 as a way of expanding into the financial sector by leveraging its solid footprint in Portugal with 569 physical locations, of which the bank is present in 212.

In 2023, CTT reported €985M Revenues, which represent a growth of 5.5% from 2022 and is expected to reach €1,012M by 2024. The group is divided into 4 business units (BUs) – Mail & Other (44% FY2024 Sales, -3% FY2024 recurring EBIT €-3.3M), Express & Parcels (E&P) (35%, 23% | €20M), Financial Services (6%, 42% | €36M) and Banking (15%, 29% | €25M).

Logistics Segments | CTT manages 80% of the Postal Traffic in Portugal under a Universal Service Obligation. However, pricing is regulated by conventions with ANACOM and dropping volumes in **Mail** present a challenge for this segment as rising costs are probable, and revenues have been consistently dropping. The main revenue growth driver for CTT is the **Express & Parcels** Segment, supported by both organic and inorganic growth. The company focuses in B2C last-mile solutions in Portugal with a notable migration towards Spain. The CACESA acquisition will strengthen cross-border operations through in-house clearance, which will allow for more efficient deliveries in the Iberian Peninsula. In Portugal, CTT holds a stable 50% market share, which might be enhanced by a future joint venture with DHL, and a market share of 4% in Spain, with prospects of future growth to 5.5% enabled by the CACESA's acquisition.

Figure 13- Financial Services Revenue Distribution
Source: Team Analysis

Banco CTT (BCTT) | BCTT is a retail bank which specializes in auto and mortgage loans and capitalizes on the company's extensive postal network for its 212 branches. In 2023, the bank showed significant growth, driven by a 33% increase in net interest income in a period of rising rates. Nonetheless, CTT has conveyed a clear strategic trajectory of focusing on its core business, highlighting its willingness to gradually reduce involvement in banking activities. As of 2024, Generali has acquired a 8.7% stake of the bank as part of a tactical partnership that allows CTT to sell its insurance through the Financial Services segment.

Financial Services & Retail (FS) | The FS segment includes operations related to Savings & Insurance, Retail, Money Order, and Payments. This segment generated revenues of €63M in FY23, which represents a 7% CAGR from FY19 to FY23. Despite being the smallest segment by revenue, its profitability has grown markedly, moving from an EBIT margin of 46% in FY20 to 58% in FY23. In FY24, FS is expected to decrease substantially as a result of government-imposed caps that limited investment in saving certificates.

The Savings and Insurance sub-segment represents around 72% (€45M) of FS total revenue, mostly due to the distribution of Saving Certificates (~98%). Nonetheless, insurance revenues are expected to increase gradually levered by the recent deal with Generali, which is a bargaining chip to spread Generali's portfolio across all the 569 CTT physical locations.

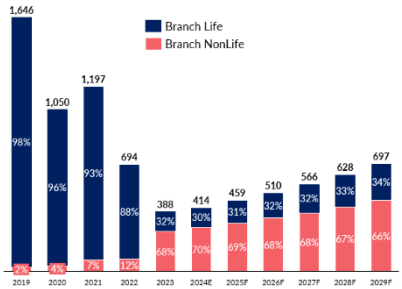


Figure 14- Insurance Offer by Branch
Source: Team Analysis

CTT acts as the intermediary for the IGCP by selling the aforementioned saving certificates, having had 12,590M subscriptions in FY23. These products are highly demanded by the population, however, are vulnerable to market conditions as shown in FY24.

The company insurance offer covers life and non-life insurance, the latter being the main source of revenue because of a reinforced commercial dynamism based on the distribution agreement Generali.

As part of the Retail Products and Services operations, CTT sells retail items, namely, prepaid cards, and telecommunication products. In FY23, a product line was discontinued, resulting in a 40% decrease in revenues however new partnerships, namely with Prossegur, might help result in a slight increase in the future.

The operations related to Money Order and Payments are by definition the most traditional services that the segment has to offer. These services allow people who do not have a bank account to transfer both domestically and internationally as well as pay household bills and utilities through the postal network. Considering their outdated nature, the contribution of these services to the segment has been deteriorating, representing simply 8.9% of FS revenue in FY23 as opposed to the 27% share in FY18. As of 2024, these services were allocated to the Mail Segment.

By integrating these operations, CTT leverages its postal networks to provide asset-light and high-margin financial services, particularly in rural areas which are exposed to limited and decreasing banking access.

Figure 15- Evolution of Deposit Rates and Saving Certificates
Source: Team Analysis

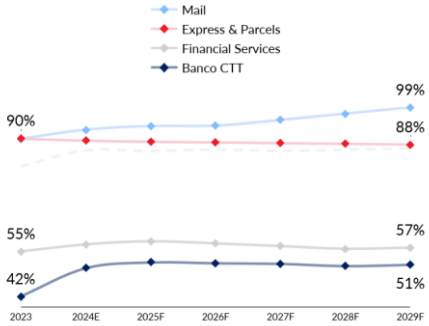


Figure 16- OPEX/ Sales Ratio per Segment
Source: Team Analysis

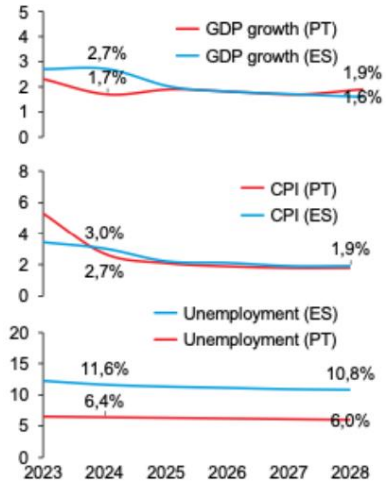


Figure 17- Macro Indicators
Source: Team Analysis

Company Strategies

Maintain market leadership in mail | Despite its declining trend, the Mail & Others BU remains the top revenue segment, although negative in the bottom line. CTT is advocating for a regulatory framework that supports USO sustainability and quality standards. Moreover, this BU allows for the Financial Services segment to be distributed by the entire country, increasing significantly its reach.

Strengthen FS platform and offer a broader range of services | The FS segment has strengthened its position by improving its digital capabilities, including a platform for public debt certificates, its main source of revenue. This app was launched in 2024 and already represents 6% of total subscriptions. Partnerships such as Generali have expanded life and non-life offerings. The retail and payments segment is optimizing its portfolio for both in-person and digital consumers while maintaining its traditional operations and accommodating older demographics. The growth in the insurance offerings should offset the decline in the other financial services.

Leveraging Infrastructure for Sustainable Growth | CTT's profitability hinges significantly on the shared use of its infrastructure, primarily built around the Mail segment but leveraged across all business units. This integration allows segments like E&P, FS, and BCTT to benefit from economies of scale while operating costs are predominantly booked under the Mail segment. Although mail volumes are steadily declining, regulated price adjustments have mitigated revenue loss, enabling a smoother transition to diversified business activities. This shared infrastructure underpins cost efficiency and supports profitability across the Group, as the Mail segment absorbs most of the fixed operational costs funded from regulated activity.

Customer Loyalty | Within FS, there is a stable, yet less significant stream of revenue earned from customers from more rural regions. There has been a decrease in the population living in these regions however, it is estimated that around 32% (FY23) of Portuguese people remain there. The increasing urbanization of the population might present a challenge to the company in terms of rising demand for more modern services. CTT's commitment to innovation of services might allow the company to capitalize on this demand and increase its customer base beyond the older demographics. Nevertheless, modern financial services might challenge this positioning.

Public Debt Certificates | This source of revenue accounts for nearly 72% of total FS revenue, driving an increase in profitability when economic uncertainty pushes savers toward lower-risk investments. However, the liberalization of the market to sell these securities (in 2024, Banco BIG) is leading to an increase in competition and compression of commissions partially offset by CTT's strong physical network and willingness to innovate.

Industry Overview and Competitive Positioning

Iberian Economic Outlook

Portugal's economic growth is expected at 1.7% (2.7% ES) in 2024 before rebounding to 1.9% (1.6% ES) in 2025, according to EIU. This growth will be mostly driven by private consumption and investment. Inflation is forecast to ease to 2.7% (3.0% ES) in 2024 and 1.9% (2.3% ES) in 2025, while unemployment will remain quite stable over the period. Despite having a stable domestic outlook, externally, geopolitical risks remain a challenge posing downside risks to growth and inflation.

Geopolitical Instability

In recent years, the global context has been dominated by a high degree of uncertainty. The war in Ukraine, the tensions in the Middle East, and recent instability within major European economies, such as France and Germany, are concerning elements that can lead to economic slowdowns and geopolitical instability. The main effect of this instability relates to the consequent reaction of Central Banks regarding monetary policy and to possible disruptions to the global supply chain. Both effects are highly affecting the Group BUs and their revenue generation capacity.

Market Overview

Saving Certificates | The investment in Saving Certificates is driven by both economic and behavioral factors. The remuneration of the current Series F certificate is indexed to EURIBOR-3M,with a floor at 0% and a cap at 2.5%, which introduces some interest rate sensitivity.

Historically, the government has shown a constant reliance on these saving products as a financing source. From 2012 to 2022, on average, 5.2% of Direct Debt was obtained through SC, and in 2023 this rate substantially increased to an unprecedented percentage of 11.5%, The main reason for this reliance is the lower cost of debt financing associated with these products from the government's side, driven by an increasing demand for them from retail investors.

However, saving certificates might be occasionally subjected to government intervention whenever the subscription flow increases to a point where it threatens banking system stability, through a significant outflow of deposits. These interventions typically take the form of a mandatory cap in saving certificates subscriptions which make retail investors seek other alternatives, more

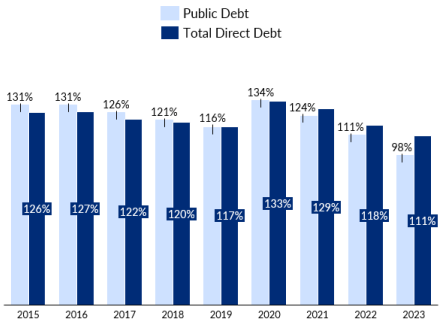


Figure 18- Public Debt VS Total Direct Debt
Source: IGCP

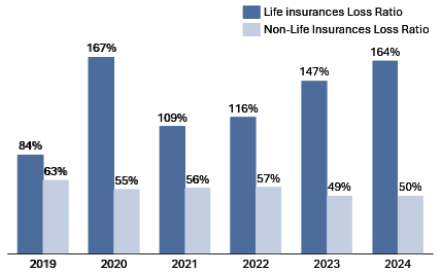


Figure 19- Loss Ratios By Insurance Branch
Source: Statista

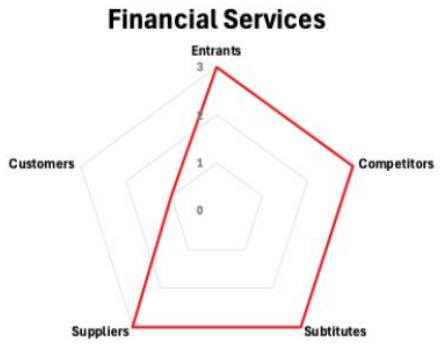


Figure 20- Porter's 5 Forces
Source: Team Analysis

specifically deposits. In 2024, the government imposed new limits due to substantial increasing flow of subscriptions and thus decreased total investment cap to €100k of Series F and €350k of combined Series E and F per savings account. This intervention alongside the increase in deposit rates above the EURIBOR 3M rate led to a growth in redemptions of SC of 53% and a decrease in issuances of 77% from 2023 to 2024, marking a record outflow.

Nonetheless, on Nov-24, the outstanding stock of saving certificates reached an all-time high of €34Bn, ending an 11-month contraction. Considering that deposit rates have dropped below the savings certificate's remuneration of around 2.5% (EURIBOR-3M on Nov-24), the demand is expected to rebound. Furthermore, demand is expected to move according to interest rates dynamics, retail investors' sentiment towards the economy and the government, and demographic evolution.

Insurance market | Within the Insurance Industry, the life branch has faced persistent loss ratios above 100% since the COVID-19 pandemic, signaling that gross claims have been exceeding premiums. These loss ratios are further worsened by the high-interest rate environment that led to budgetary pressure on households and consequently, withdrawals from life insurance products. In contrast, the non-life branch shows a more favorable outlook, with loss ratios around 40% throughout the forecast horizon. Aligning with this trend, the non-life branch achieved a historical maximum, representing 56.4% of the total insurance industry premiums in 2023, while life offer premiums keep on declining.

Digitalization | The Financial Services industry is modernizing with the rising preference for digitalized services, largely driven by younger generations. In Portugal, approximately 24% of the population is aged over 65, from which 45% does not use mobile banking, highlighting a significant gap in digital financial inclusion. Albeit internet use is substantially high (~88.5%), adoption of more sophisticated digital financial services remains limited amongst older generations. Hence, adoption delays are expected to persist in the medium term. Therefore, CTT has responded to this trend by gradually expanding its digital services, offering mobile apps and digital financial solutions.

Demand Drivers

Financial Services | The investment in public debt certificates depends partially on economic conditions and how attractiveness evolves with interest rate movements, which is jeopardized by caps on Saving Certificates' remuneration, currently at 2.5%. Considering recent decreases in deposit rates, demand for SC is expected to increase in 2025 after a lower demand for these products in 2024. Moreover, accessibility through a widespread physical network drives demand, especially for insurance sales.

Supply Drivers

Financial Services | Strategic Partnerships allow for product diversification such as the sale of insurance and distribution of saving certificates as well as enhancement of market presence. Physical Networks effectively reach aging and countrified markets while the incorporation of digital channels will attract younger and urban markets, leading to the diversification of the customer base.

Competitive Positioning- Financial Services

Rivalry Among Existing Competitors

Medium | CTT's services within the Financial Services segment can be highly differentiated from others resulting in customer loyalty, especially amongst older demographics in more rural areas. Therefore, even though there is an increasing modernization of services in other competitors within the industry, this segment will not be completely exposed to these shifts in consumer trends due to a slight diversification of services within the segment. Regarding the distribution of saving certificates, rivalry remains moderate since the other player, Banco BIG, caters to a more digital savvy and financially sophisticated type of investor, which limits direct overlap with CTT's current clientele. Nonetheless, in a market in which CTT has been the sole intermediary up until 2024, the existence of competitors will lead to a compression of commissions, resulting in a decrease in revenue.

Threat of Substitute Products

Low to Medium | Depending on the location of the service, the threat of substitute products can be low to medium. In rural areas, this threat will be low however, in more urban areas, which have a considerably higher number of young people and tech-savvy consumers, this threat will most likely be higher. In the context of channel substitution, there are other platforms, namely AforroNet by IGCP, which also distributes these certificates. However, the app has had several technical failures in the past, which led to an opportunity for CTT to benefit from that temporary error. Moreover, even considering that CTT acts only as a distributor, there are product substitution risks associated with other products as further low-risk investment vehicles become more attractive, saving certificates might lose traction, and thus, CTT's revenue from FS will decrease.

Bargaining Power of Suppliers

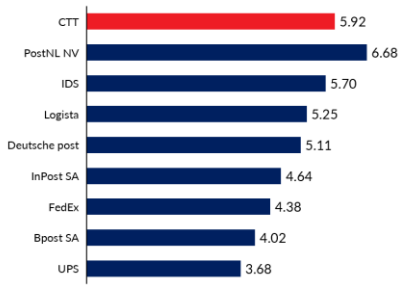


Figure 21- ESG Score VS Peers
Source: Bloomberg Terminal

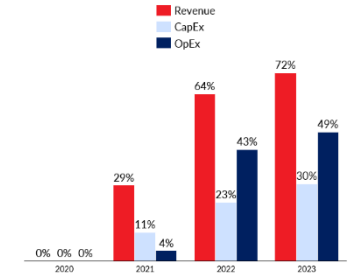


Figure 22- CTT's Taxonomy Eligible Activities (in %)
Source: Company Report

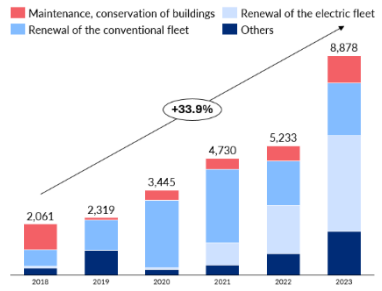


Figure 23- Environmental Investment (in €k)
Source: Company Report

	2020-2022	2023-2025	Δ
Board Members	14	11	-3
Executive	5	3	-2
Non-Executive	9	8	-1
Independent	6	5	-1
Women	5	4	-1

Figure 24- Current Board Composition VS Prior
Source: Company Reports

Medium | Considering FS suppliers as IGCP for saving certificates and insurance companies for the insurance services provided, CTT's reliance on these partnerships gives them some supplier bargaining power. IGCP has full control of product terms, commissions rates, and distribution channels for saving certificates. However, the company's large network gives it leverage to negotiate better terms regarding the insurance offer.

Bargaining Power of Customers

Low | With respect to FS main activity, the bargaining power is low as the product's terms are fixed by the IGCP and there is no room for negotiation. In rural areas, where customers are often loyal and have few alternatives, CTT provides convenience and physical access. Even in more urban and digitally fluent regions, customers investing in savings certificates have limited alternatives. While other digital banking services might be used for alternative products, there is no significantly higher quality channel for saving certificates subscriptions. Hence, customer bargaining power is considerably low.

Threat of New Entrants

Medium | Liberalization policies could open distribution to other players as it has happened in 2024 with Banco BIG, reducing CTT's exclusivity. However, CTT's main strengths are customer loyalty and brand reputation, which grants it with enough status to keep a majority share in the saving certificates distribution. Furthermore, in the long run, the increasing digital transformation alongside the change in customer base, might present a threat to the FS segment type of service as online services become more appealing. CTT counterbalances this issue with increasing adaptability by modernizing some of its services.

ESG - Environment, Social and Governance

CTT's ESG Score of 5.92 shows that the company outperforms peers within almost every aspect, but the Governance one. ESG was incorporated into our discount rate computation.

The company reports on activities like Eligible (Mail, Express & Parcels) and Non-Eligible (Banco CTT, Financial Services). In 2023, 72% of revenue came from taxonomy-eligible activities, with related CAPEX at 30% and OPEX at 49%.

Environmental

CTT operates in a high-emitting sector due to the nature of its main operation, establishing a significant focus on fleet efficiency. The company is below peer median in terms of emissions and has reduced total carbon emissions by 21% in 2023, being on a good track towards meeting its SBTi goal of a 55% reduction by 2030 (vs 2021). This goal is particularly relevant due to its association with a 35 million euros loan which was enabled through CTT's Sustainability-Linked Loan Framework. Moreover, environmental investments of €9M (+324% in 2023 vs2018) have been tightly related to the company's effort towards energy efficiency, through the increase of electric vehicle share by 19.6% in 2023 and waste management, which allowed for a recovery rate of 99.3%.

Social

In 2023, CTT's corporate turnover rate hit 18.7% (+0.2 p.p. 2022), and the contracting rate rose to 37.5% (+7.6 p.p. 2022), both of which rates outperformed peers. The company demonstrates strong employee representation, with 96% of its workforce covered by Collective Labor Agreements and 70% Union Membership, ultimately contributing to its high retention levels.

Governance

CTT has a relatively dispersed shareholder base, with a free float of 52.7%, and has recently concluded a share buyback program in April 2025. In 2024, CTT was fined by ANACOM for failing to comply with quality standards, highlighting the importance of the company's role as a public service provider. Despite this, the company's board has fewer independent directors and less female representation than its peers, which raises some concerns about governance efficiency. Executive pay is partially tied to performance (around 37.2% of total remuneration), mostly related to financial accomplishments rather than sustainability linked metrics.

Valuation

Free Cash Flow to Equity (FCFE): a Sum of the Parts (SoP) Approach – Connecting the Dots

Considering CTT's business complexity with operations in different industries, the Group's cash flows are influenced by distinct value drivers, growth prospects, and risk profiles. A SoP approach is deemed necessary to capture those factors on a business level and being able to aggregate them into a target price.

The presence of Banco CTT, which requires the use of an equity valuation approach, led us to the implementation of this method along with all the business segments, aiming to harmonize the

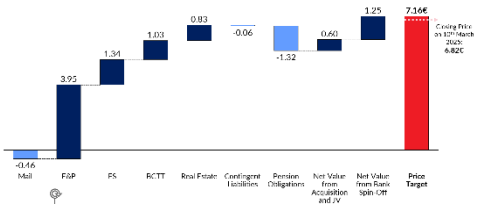


Figure 25- SoP Valuation Bridge
Source: Team Analysis

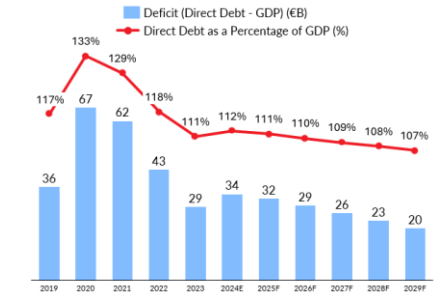


Figure 26- Forecast of Direct Debt as a % of GDP
Source: Team Analysis

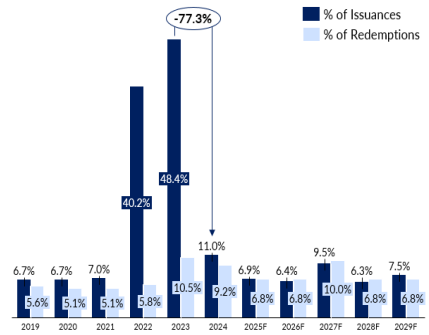


Figure 27- Saving Certificates Issuances and Redemptions
Source: Team Analysis

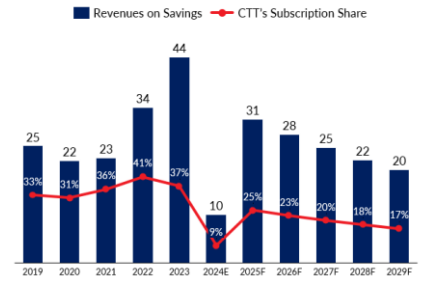


Figure 28- Savings Revenue Forecast and Subscription Share
Source: Team Analysis

valuation process. Moreover, we accounted for the valuation of the bank in case of a spin-off in our forecast since CTT made it clear that this would be within their scope of possibility as a way of focusing on their core business.

Appendix 12 expands on the valuation which considers forecasts for the period FY24 to FY29. The terminal value was defined through a required reinvestment rate, which allows connecting the reinvestment required to attain target growth and profitability levels.

After considering all outputs, we deemed a Sum-of-the-Parts with an FCFE approach for each segment as the most appropriate method.

Revenue Forecast

Financial Services | A top-down approach was considered to forecast revenue. First, GDP forecasts were obtained from INE and Debt as a % of GDP was assumed to decrease over the years by a CAGR (FY18-FY24) of -1.1%, reflecting Portugal's long-term goal to reduce debt burden. Thereafter, the share of saving certificates as a % of Total Direct Debt for FY25 was set at 11.35%, at the same level of FY24 due to a substantial increase in saving certificates arising from the decrease of deposit rates. Saving Certificates as a % of Total Direct Debt is expected to decrease from FY26 to FY29 at the same rate of 1.3% as it did from FY23 to FY24, as a result of eventual normalization with historical averages of 5.2% whilst maintaining a higher government dependency on retail sovereign debt than before. Moreover, the commission paid by the IGCP was presumed to be the same as the one agreed in 2023 (0.35%). The effects of market liberalization were accounted for in the share of subscription of Total Saving Certificates. While this rate was historically around 35%, we assumed a significant decrease to nearly 17% in 2029 as we decided to take a more conservative approach. In FY24, volume of issuances dropped by 77% from FY23, a decrease driven by policy constraints on subscriptions rather than lack of demand. In order to prevent an overestimation of CTT's role based on inaccurate data, this unprecedented supply-sided drop was deducted from the average subscription share. However, we expect a high inflow of subscriptions in 2025 as deposit rates are significantly below SC payouts and the cap was increased.

The Insurance offer was estimated with expected additions from the Generali partnership. The revenues were forecasted, assuming Generali's CAGR (FY18-FY23) of 13.28% and 9.93% for Life and Non-Life offer, respectively. As previously mentioned, a higher emphasis on non-life is expected as a result of the distribution contract.

The Retail Sub-Segment was forecasted by assuming a conservative 2% growth. Although there was a significant decrease in revenues from FY22 to FY24, new partnerships might result in more positive prospects than we assumed.

Margin | The Financial Services operating margin remains strong, especially considering the Mail segment absorbs most of its costs. Considering the segments' consistently high margins, we applied a moving average to reflect slight yearly transitions.

CAPEX, D&A, and RoU | Considering historical investments, CTT's guidelines on future investments, and our detailed analysis of CTT's asset classes, we expect CAPEX to grow, as a consequence of the group effort to keep the pace with e-commerce. Depreciation and Amortization (D&A) are forecasted based on the estimated useful lives of CTT's tangible and intangible assets, then allocated to the four business units (BUs) according to their respective asset holdings. The Financial Services BU is the most asset light from all the other Bus due to the nature of its operations as an intermediary and relies on pre-existing physical infrastructure.

Cost of Equity | The Group is exposed to several risk factors that cannot be captured in a single discount rate. Therefore, different cost of equity figures for each business segment. The normalized 10-year German Government Bond Yield (2.20%) sets the riskless asset. Using the Financial Services and Insurance Industry (from non-banking activities) Beta from Damodaran (2025) and considering the Portuguese Market Risk Premium (MRP) for Portugal 5.86% and Country Risk Premium 1.38% for almost all business segments.

Terminal Period | The terminal growth rate applied to each segment varies, reflecting their differing growth prospects. FS was given a growth rate not exceeding 1%, reflecting its reliance on the Mail infrastructure and the limited growth potential due to high dependence on exogenous variables.

Adjustments: Contingent Liabilities and Pension Liabilities | Contingent liabilities incorporate a 75% likelihood to reach the expected outflow, resulting in an estimated €8.4M (-0.06 €/sh.) figure. Pension liabilities do not have the corresponding assets, thus there is a full negative funded status. As our SoP approach to cash flows and valuation disregards this responsibility, the FY24 actuarial value of €178M (- 1.33 €/sh.) is adjusted in the valuation.

Financial Analysis

Top-line Revenue growth – Expectations for the Group and Financial Services

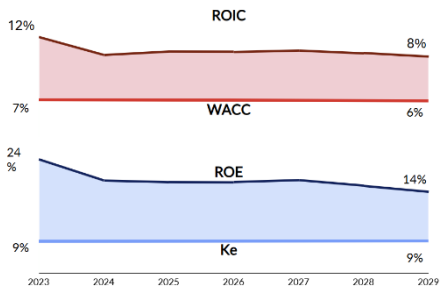


Figure 29- Profitability
Source: Team Analysis

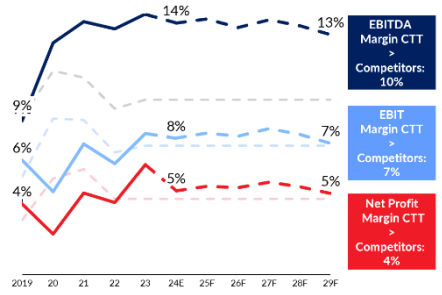


Figure 30- Profitability VS Iberian Competitors
Source: Team Analysis

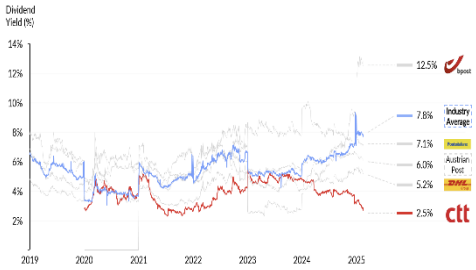


Figure 31- CTT's Dividend Yield VS Peers
Source: Team Analysis

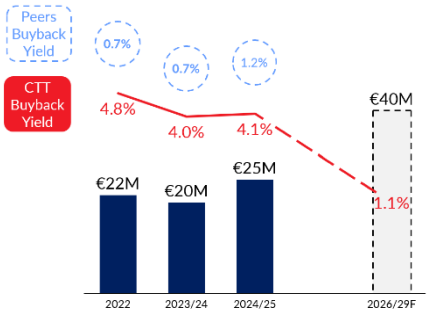


Figure 32- Share Buyback Yield
Source: Team Analysis

CTT achieved a notable 6.6% CAGR in overall top line growth Revenues from FY19 to FY23. Looking ahead, revenues are projected to grow at a CAGR of 6.2% from FY25 to FY29, significantly boosted by the recent acquisitions and partnerships scenario (+2.2% on CAGR 25-29). While the traditional Mail business continues to contribute significantly to the top line albeit not a profitable business, the diversification efforts are increasingly taking precedence. Concerning the FS segment, revenues from FY19 to FY23 presented a CAGR of 18.6%, mostly supported by the increase in the subsegment of Savings and Insurance which counterbalanced the effects of decreases in other segments. A CAGR of -5% is expected for the financial services segment from FY25 to FY29 as a result of conservative assumptions around the impact of market liberalization effects.

Financial Performance: Holding the Line

CTT continues to deliver solid value creation by maintaining strong returns above capital costs. Throughout the forecasted period, Return on Invested Capital (ROIC) will stabilize at around 8%, exceeding our estimated Cost of Capital (WACC) of 6%. Similarly, Return on Equity (ROE) is predicted to remain stable at 14%, surpassing the Cost of Equity of 9%. This reinforces CTT's ability to generate economic profit on a stable basis.

CTT's EBITDA margin is expected to stand at 14% in 2024, significantly surpassing the Iberian peer benchmark of 10%. These margins reflect the positive effect regarding CTT's restructuring efforts, especially the Spanish E&P consolidation. Nonetheless, it is worth noting that this strength at the consolidated level hides an underlying issue related to the Mail segment, which is expected to reach a 87% OPEX-to-Sales. The increasing cost is related to both rising costs of the segment itself alongside the cost allocation of other segments, as well as the decreasing mail volumes.

Operational Efficiency

From an operational perspective, CTT is underperforming its peers, presenting a significantly lower asset turnover. While peers' asset turnover stands at 0.86, the company's turnover is at 0.22, demonstrating further evidence of the negative effects of the Mail segment on a consolidated basis. The Fixed Assets Turnover Ratio is projected to improve from 3.05x in FY24 to a forecasted 5.37x by FY29, driven by increased efficiency in infrastructure utilization. The CAPEX-to-Sales ratio is expected to remain within its historical range of 2.5% to 3.0%, supported by planned investments totaling €185M over the next five years (approximately €37M annually).

Group's Capital Structure

Historically, CTT's reliance on debt was primarily to finance its expansion efforts in Spain. Although the acquisition of CACESA involved additional debt, a bank overdraft was repaid in FY24, leading the Debt-to-EBITDA to stay below 2x following the completion of both acquisitions and the JV process, as outlined by CTT.

In the forecasted years, CTT is expected to maintain a stable capital structure. Its Net Debt-to-EBITDA ratio is projected to stay at a constant level of 1.87x, being in line with the company's target of keeping this ratio below 2.0x. Moreover, as of FY23, the company reported a Debt-to-Equity ratio of approximately 1.06x, which we projected to modestly decrease to 0.83x. These deals are not expected to adversely affect liquidity, as reflected by our forecast with stabilized values for Current, Quick and Cash Ratio, averaging respectively 0.71x, 0.14x, 0.10x over the years 2024-2029.

Shareholder Remuneration

CTT's dividend yield has been historically below the industry average of 7.8%, showing a slight convergence in FY20 and FY23. The company's current yield stands below the average at 2.5% and DPS is expected to steadily increase from €0.18 to €0.19 by FY29. CTT's payout ratio is expected to range between 40% to 50% in the forecasted years. Furthermore, since 2022, the company has initiated share buyback programs, successfully completing two so far. The latest program, announced in July 2024, aims to purchase 8.5M shares for a total amount of €25M and later cancelation of such shares is expected, enhancing EPS from €0.35 in FY24 to €0.41 in FY29. The Share Buyback Yield stood at 4.1%, significantly outperforming the peers average which hoisted at around 0.7%-1.2%.

Investment Risk

MR 1 | Market Risk | Interest Rate

The attractiveness of savings certificates is heavily dependent on interest rate changes. When interest rates are higher, investors might look for more appealing alternative investments, such as bank deposits, leading to a decrease in demand for saving certificates. Series F saving certificate rates are linked to the Euribor 3M rate and subjected to a floor of 0% and a cap of 2.5%, limiting its competitiveness in a scenario of increasing interest rates.

MR 2 | Market Risk | Macroeconomic Factors

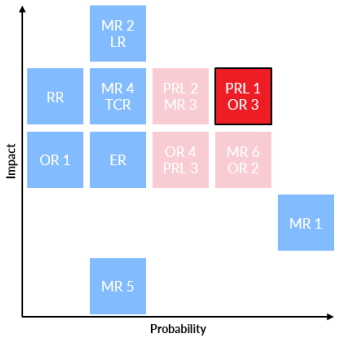


Figure 33- Risk Matrix
Source: Team Analysis

Macroeconomic conditions like economic downturns, inflation, and political instability in Portugal and other regions could adversely impact CTT's performance. These factors influence retail investors on both savings and investment decisions, as they impact budgetary planning and risk perception. Elevated inflation alongside decreasing trust in the government can steer retail investors away from saving certificates as they will be more reluctant to allocate funds to sovereign debt instruments.

MR 3 | Market Risk | Competition

CTT faces competition within the Financial Services BU. Regarding the distribution of savings certificates, the company is not the only distributor of these certificates and as of the beginning of 2024, Banco BIG will also become a distribution channel. Even considering that little to no effects were reflected in CTT's results thus far, this might present a threat in the long run if market liberalization leads to additional players. Moreover, by selling insurance products from Generali, CTT is also competing with other insurers intermediaries, which is a considerably more competitive market.

MR 5 | Market Risk | Urbanization

CTT has a strong presence in the rural areas however around 68.6% of the Portuguese population lives in the urban area and it is expected to keep increasing to 75.3% by 2040. The urbanization of the population will lead to a decrease in demand for other traditional financial services (such as money orders, payments, and retail), which might be more sought after in the rural regions. This decrease in demand will impact on the Mail segment in the future as these services were transferred from the FS segment to the Mail one. Mitigation: CTT is looking into modernizing its services to align with urbanization trends through self-service lockers as well as the enhancement of digital service offerings.

MR 6 | Market Risk | Demographic Change

In Portugal, 24% of the population is currently over 65 and this percentage is expected to increase to 28% by 2040. Even considering the rapid rate at which the population is aging, younger generations might no longer rely on the same services and investments as the previous ones did. The generational change is already affecting heavily the Mail business. Moreover, Financial Services might also be affected by this evolution in the long run due to changes in investor profiles, leading to alternative investment choices. Even though this risk is considered more substantial only in the long term, CTT can leverage cross-selling over all the businesses of the group to soften the trend.

PRL 2 | Political, Regulatory, and Legal Risk | Government Intervention

CTT is subjected to changes in government policy such as limitations on subscription conditions. The potential impact of such interventions can greatly affect the sale of savings certificates, as was previously shown by a change of -87.2% in revenues in savings from 1H2023 to 1H2024. These results were registered posterior to the government announcement of the reduction of subscription of series F certificates to €50k per subscriber in June 2023, which was raised to €100k later on. The diversified portfolio of CTT offsets this risk partially, especially considering the ability to partially relocate these funds to Banco CTT.

Appendix C: CTT's Equity Research Additional Materials

Appendix 7: Consolidated Financial Statements

Note: *The main work can be read independently of these Appendices, although they provide a better understanding of the analysis. The valuation of other segments of CTT are outside the scope of this MFW, as it aims to provide a deep analysis on the Financial Services segment, in order to focus on Saving Certificates Demand.*

Consolidated Balance Sheet (€k)	2022	2023	2024E	2025F	2026F	2027F	2028F	2029F	Notes
Tangible fixed assets	303,206	296,995	331,712	323,332	302,747	291,636	284,693	275,770	see Asset Schedule
Investment properties	6,184	5,976	6,051	6,051	6,051	6,051	6,051	6,051	
Intangible assets	69,409	70,640	71,347	70,599	68,788	65,553	60,894	54,811	see Asset Schedule
Goodwill	80,257	80,257	80,257	164,602	164,602	164,602	164,602	164,602	
Investments in joint ventures	-	22	22	22	22	22	22	22	
Financial assets at fair value through profit or loss	26,220	13,532	14,094	14,794	15,560	16,522	17,347	18,230	
Debt securities at amortized cost	409,389	364,706	382,024	400,997	421,767	447,848	470,202	494,133	see BCTT details
Other non-current assets	70,925	78,130	78,130	80,121	80,121	80,121	80,121	80,121	
Credit to banking clients	1,287,676	1,444,412	1,492,786	1,556,575	1,626,993	1,718,230	1,793,461	1,874,316	see BCTT details
Total non-current assets	2,253,265	2,354,670	2,456,424	2,617,093	2,686,651	2,790,586	2,877,394	2,968,056	
Inventories	8,041	6,663	11,171	13,648	16,080	17,025	18,329	19,328	see NWC Schedule
Accounts receivable	147,131	153,062	163,388	171,197	179,396	187,021	194,870	199,552	
Credit to banking clients	489,889	148,802	164,330	171,352	179,103	189,147	197,429	206,330	
Debt securities at amortized cost	128,392	364,760	1,560,749	1,828,865	1,899,911	1,978,263	2,022,450	2,145,760	
Other current assets	113,076	102,501	102,493	102,493	102,493	102,493	102,493	102,493	
Other banking financial assets	461,226	1,274,575	770,044	601,877	686,363	791,188	892,408	907,313	see BCTT details
Cash and cash equivalents	456,469	351,610	380,959	426,894	502,225	521,538	555,564	578,602	
from CF (excl. BCTT)			302,352	346,526	419,930	436,822	468,773	489,590	
from BCTT BS			78,607	80,368	82,295	84,716	86,790	89,011	
Total current assets	1,804,224	2,401,972	3,153,134	3,316,325	3,565,570	3,786,674	3,983,543	4,159,376	
Total assets	**4,057,488**	**4,756,642**	**5,609,557**	**5,933,418**	**6,252,221**	**6,577,260**	**6,860,936**	**7,127,432**	
Share capital	72,675	71,958	69,220	69,220	69,220	69,220	69,220	69,220	see Equity appedinx
Own shares	(10,826)	(15,625)	(8,948)	(18,948)	(28,948)	(38,948)	(48,948)	(58,948)	
Reserves	53,844	48,113	30,510	30,510	30,510	30,510	30,510	30,510	
Retained earnings	64,647	83,269	119,951	147,154	176,807	205,298	241,973	278,820	
Other changes in equity	6,857	3,402	3,409	3,409	3,409	3,409	3,409	3,409	
Net profit	36,407	60,511	47,366	57,236	62,351	69,950	70,123	58,434	
Equity attributable to equity holders of the Parent Company	223,603	251,629	261,508	288,582	313,350	339,441	366,289	381,446	
Non-controlling interests	1,326	1,624	33,564	34,217	41,308	49,578	59,140	70,096	
Total equity	**224,929**	**253,253**	**295,072**	**322,799**	**354,657**	**389,019**	**425,429**	**451,542**	
Medium and long term debt	136,198	161,080	195,899	227,677	244,750	265,449	273,082	272,796	see Debt Schedule
Employee benefits	185,258	149,740	149,740	149,740	149,740	149,740	149,740	149,740	
Provisions	12,632	26,339	26,339	26,339	26,339	26,339	26,339	26,339	
Debt securities issued at amortised cost	445,226	347,132	361,539	379,494	399,150	423,833	444,988	467,636	see BCTT details
Other non-current liabilities	10,108	5,342	5,342	5,342	5,342	5,342	5,342	5,342	
Total non-current liabilities	789,422	689,633	738,859	788,593	825,322	870,704	899,492	921,853	
Accounts payable	525,212	373,961	385,753	457,141	522,438	536,548	560,328	573,123	see NWC Schedule
Banking clients' deposits and other loans	2,245,330	3,090,963	3,844,039	4,005,619	4,182,499	4,404,619	4,594,991	4,798,791	see BCTT details
Employee benefits	22,092	22,049	24,119	25,567	26,864	27,732	28,671	29,516	
Short term debt	59,757	107,935	70,526	81,967	88,113	95,565	98,313	98,210	see Debt Schedule
Financial liabilities at fair value through profit or loss	26,345	13,744	10,680	11,210	11,791	12,520	13,145	13,814	
Debt securities issued at amortised cost	352	243	254	266	280	297	312	328	
Other current liabilities	117,839	157,101	157,101	157,101	157,101	157,101	157,101	157,101	
Other banking financial liabilities	46,211	47,760	83,155	83,155	83,155	83,155	83,155	83,155	
Total current liabilities	3,043,136	3,813,756	4,575,626	4,822,026	5,072,242	5,317,537	5,536,016	5,754,038	
Total liabilities	**3,832,559**	**4,503,389**	**5,314,485**	**5,610,619**	**5,897,563**	**6,188,241**	**6,435,507**	**6,675,890**	
Total equity and liabilities	**4,057,488**	**4,756,642**	**5,609,557**	**5,933,418**	**6,252,221**	**6,577,260**	**6,860,936**	**7,127,432**	

Consolidated Income Statement (€k)	2022	2023	2024E	2025F	2026F	2027F	2028F	2029F	CAGR 25-29
Revenues	**906,625**	**985,219**	**1,011,565**	**1,158,493**	**1,287,827**	**1,354,586**	**1,427,285**	**1,479,426**	**6.3%**
Sales and services rendered	788,582	844,606	895,414	1,043,370	1,167,392	1,227,968	1,293,994	1,345,666	6.6%
Financial margin	74,357	98,791	91,258	89,416	93,828	99,035	104,751	106,113	4.4%
Other operating income	43,686	41,821	24,893	25,707	26,608	27,583	28,539	27,646	1.8%
Operating costs	(850,498)	(907,441)	(934,491)	(1,066,858)	(1,188,278)	(1,244,037)	(1,315,480)	(1,370,918)	6.5%
External supplies and services	(343,216)	(394,021)	(412,506)	(508,827)	(603,310)	(639,265)	(689,354)	(727,918)	9.4%
Staff costs	(358,237)	(365,020)	(395,394)	(419,131)	(440,401)	(454,627)	(470,020)	(483,874)	3.7%
Other Operating Costs	(80,632)	(82,665)	(61,192)	(64,950)	(66,115)	(67,638)	(69,304)	(69,236)	1.6%
EBITDA	**124,540**	**143,513**	**142,473**	**165,585**	**178,002**	**193,056**	**198,607**	**198,399**	**4.6%**
Depreciation/amortization and impairment of investments, net	(68,413)	(65,735)	(65,399)	(73,950)	(78,452)	(82,507)	(86,802)	(89,891)	5.0%
EBIT	**56,127**	**77,778**	**77,075**	**91,635**	**99,550**	**110,549**	**111,805**	**108,508**	**4.3%**
Financial results	(9,413)	(16,240)	(12,638)	(13,951)	(14,996)	(15,740)	(16,809)	(17,685)	6.1%
EBT	**46,714**	**61,538**	**64,436**	**77,684**	**84,554**	**94,809**	**94,996**	**90,823**	**4.0%**
Income tax for the period	(10,372)	(1,096)	(17,071)	(20,449)	(22,203)	(24,859)	(24,873)	(23,747)	3.8%
Net profit for the period	**36,342**	**60,442**	**47,366**	**57,236**	**62,351**	**69,950**	**70,123**	**67,076**	**4.0%**
Equity holders	36,407	60,511	46,712	50,145	54,080	60,388	59,167	55,100	
Non-controlling interests	(64)	(69)	653	7,090	8,271	9,562	10,956	11,976	
Earnings per share:	0.25	0.43	0.35	0.37	0.40	0.45	0.44	0.41	

Consolidated Cash Flow Statement (excl. BCTT) (€k)	2022	2023	2024E	2025F	2026F	2027F	2028F	2029F	Notes
Collections from customers	822,216	861,167	895,414	1,043,370	1,167,392	1,227,968	1,293,994	1,345,666	
Payments to suppliers	(442,640)	(432,066)	(412,506)	(508,827)	(603,310)	(639,265)	(689,354)	(727,918)	
Payments to employees	(333,526)	(361,412)	(395,394)	(419,131)	(440,401)	(454,627)	(470,020)	(483,874)	
Other changes (BCTT)	(119,174)	1,037,181	-	-	-	-	-	-	
Cash flow generated by operations	(73,125)	1,104,871	87,514	115,412	123,681	134,075	134,620	133,875	
Payments/receivables of income taxes	(16,360)	(1,583)	(17,071)	(20,449)	(22,203)	(24,859)	(24,873)	(23,747)	
Other receivables/payments	249,494	(96,516)	1,465	63,579	57,098	6,485	15,930	8,113	
Cash flow from operating activities	**160,009**	**1,006,772**	**71,909**	**158,542**	**158,577**	**115,701**	**125,678**	**118,241**	
Tangible fixed assets	(16,059)	(14,833)	(16,909)	(17,018)	(18,121)	(20,171)	(17,148)	(16,763)	
Intangible assets	(17,822)	(16,008)	(17,941)	(17,941)	(17,941)	(17,941)	(17,941)	(17,941)	
Acquisition of Business	-	-	-	-	-	-	-	-	
Other changes (BCTT)	(653,505)	(983,926)	-	-	-	-	-	-	
Cash flow from investing activities	**(687,386)**	**(1,014,767)**	**(34,850)**	**(34,959)**	**(36,062)**	**(38,112)**	**(35,089)**	**(34,704)**	
Net Loans	(15,761)	77,793	(5,276)	33,989	34,067	22,752	26,004	22,180	see Debt Schedule
Interest expenses	(433)	(2,558)	(12,638)	(13,951)	(14,996)	(15,740)	(16,809)	(17,685)	
Finance leases	(33,708)	(37,046)	(31,323)	(32,190)	(32,922)	(33,438)	(33,384)	(32,651)	
Acquisition of own shares	(21,574)	(10,154)	(13,763)	(10,000)	(10,000)	(10,000)	(10,000)	(10,000)	see Equity Appendix
Dividends	(17,656)	(17,888)	(23,316)	(22,257)	(25,260)	(24,270)	(24,450)	(24,565)	
Other changes (BCTT)	170,352	(97,723)	-	-	-	-	-	-	
Cash flow from financing activities	**81,218**	**(87,575)**	**(86,316)**	**(44,409)**	**(49,111)**	**(60,696)**	**(58,639)**	**(62,720)**	
Net Change in Cash (1+2+3)	(446,159)	(95,570)	(49,258)	44,174	73,404	16,893	31,951	20,817	
Other changes	-	-	-	-	-	-	-	-	
Cash at the beginning of the period	856,958	410,799	351,610	302,352	346,526	419,930	436,822	468,773	
Cash at the end of the period	410,799	315,229	302,352	346,526	419,930	436,822	468,773	489,590	
Other changes (BCTT)	45,670	36,380	-	-	-	-	-	-	
Cash and Cash Equivalent	**456,469**	**351,610**	**302,352**	**346,526**	**419,930**	**436,822**	**468,773**	**489,590**	
(+) Cash from BCTT BS			78,607	80,368	82,295	84,716	86,790	89,011	
Cash and Cash Equivalent (BS)	**-**	**-**	**380,959**	**426,894**	**502,225**	**521,538**	**555,564**	**578,602**	

Appendix 8: Notes to the Consolidated Financial Statements

Asset Schedule	2022	2023	2024E	2025F	2026F	2027F	2028F	2029F
Tangible Fixed assets (beg. of the year)	296,288	303,206	296,995	331,712	323,332	302,747	291,636	284,693
CAPEX (Tangible)	16,696	17,696	16,909	17,018	18,121	20,171	17,148	16,763
New Contracts (RoU)	32,163	13,627	61,412	27,982	19,578	29,578	39,578	39,578
Depreciation	48,608	52,157	48,165	55,260	58,700	61,330	64,202	65,867
Terminated contracts (RoU)	-	1,668	194	-	-	6,995	28,653	28,610
Tangible Fixed assets YE	**303,206**	**296,995**	**331,712**	**323,332**	**302,747**	**291,636**	**284,693**	**275,770**
Intangible Fixed assets (beg. of the year)	63,507	69,409	70,640	71,347	70,599	68,788	65,553	60,894
CAPEX (Intangible)	20,298	18,400	17,941	17,941	17,941	17,941	17,941	17,941
Amortization	16,266	17,034	17,234	18,689	19,752	21,176	22,600	24,024
Intangible Fixed assets YE	**69,409**	**70,640**	**71,347**	**70,599**	**68,788**	**65,553**	**60,894**	**54,811**

NWC Schedule	2022	2023	2024E	2025F	2026F	2027F	2028F	2029F
Inventories	8,041	6,663	11,171	13,648	16,080	17,025	18,329	19,328
Days	10	8	12	12	12	12	12	12
Accounts receivable	147,131	153,062	163,388	171,197	179,396	187,021	194,870	199,552
Days	59	57	57	57	57	57	57	57
Accounts payable	525,212	373,961	385,753	457,141	522,438	536,548	560,328	573,123
Days	658	442	428	416	403	391	379	368

Debt Schedule	2022	2023	2024E	2025F	2026F	2027F	2028F	2029F
Total Debt	195,955	269,015	248,518	274,686	288,476	299,769	322,790	340,747
ST	59,757	107,935	70,526	81,967	88,113	95,565	98,313	98,210
% ot Total Debt	30%	40%	28%	30%	31%	32%	30%	29%
Medium and LT	136,198	161,080	195,899	227,677	244,750	265,449	273,082	272,796
% ot Total Debt	70%	60%	79%	83%	85%	89%	85%	80%
Total Debt to EBITDA	1.57	1.87	1.87	1.87	1.87	1.87	1.87	1.87
of which Lease Liabilities	126,353	121,607	162,991	155,171	134,894	123,434	120,451	116,228
Repayments			(82,418)	(17,105)	(21,513)	(24,880)	(25,710)	(44,514)
Borrowings			17,189	51,094	55,580	47,633	51,713	66,695
Net Borrowing			(65,229)	33,989	34,067	22,752	26,004	22,180

Equity	2022	2023	2024E	2025F	2026F	2027F	2028F	2029F
Retained Earnings (beg. of the Year)	43,904	64,647	83,269	119,951	147,154	176,807	205,298	241,973
(+) Net Profit (previous Year)	38,404	36,407	60,511	46,712	50,145	54,080	60,388	59,167
(-) Dividends	(17,656)	(17,888)	(23,316)	(22,257)	(25,260)	(24,270)	(24,450)	(24,565)
Payout Ratio	46%	49%	39%	48%	50%	45%	40%	42%
Retained Earnings YE	64,647	83,269	119,951	147,154	176,807	205,298	241,973	278,820

Appendix 9: Income Statement Assumptions and Drivers

Financial Services Income Statement	Unit	2024E	2025F	2026F	2027F	2028F	2029F	Notes for Assumptions	CAGR 25-29
Macroencomic Indicators									
GDP	€M	272,465	278,731	284,306	289,708	295,212	300,821	Forecast from IMF	1.9%
Direct Debt	€M	306,047	310,539	313,382	315,941	318,521	321,122	Constant % of GDP based on historical average	0.8%
Saving Certificates Outstanding	€M	34,743	34,786	34,639	34,459	34,280	34,560	As a % of Debt (Same % of 2024 for 2025, slight decrease for 2026 under the assumption of gradual normalization by 2028 by applying a CAGR of -1.33% related to the decrease of amount outstanding from 2023 to 2024)	-0.2%
Issuances YoY growth	%	-77%						Only computed for 2024 as a result of an unusual decrease in subscriptions resulting from increased demand in deposits (this is not expected to affect the following years under the assumption of normalization of subscriptions)	
Revenues Breakdown									
Revenues	**€k**	**29,044**	**49,816**	**46,873**	**44,249**	**41,941**	**40,185**	**Sum of Savings, Insurance, Money Orders, Payments and Others**	**-5.2%**
Savings	€k	10,498	31,004	27,786	24,878	22,274	20,210	SC Outstanding* IGCP Fee * % of Subscription (In 2024, the growth in redemptions was deducted from subscriptions due to the negative effect it had on SC. Moreover, subscriptions have been decreased by a small percentage of 2.5% every year since 2025 as a result of the market liberalization in 2024)	-10.1%
Insurance	€k	414	459	510	566	628	697	Both Life and Non Life Branch are Expected to Increase at the same CAGR as of Generali for each branch	11.0%
Money Orders	€k	4,167	4,167	4,167	4,167	4,167	4,167	Constant	0.0%
Payments	€k	1,470	1,470	1,470	1,470	1,470	1,470	Constant	0.0%
Retail	€k	11,002	11,222	11,446	11,675	11,909	12,147	CAGR 2% from 2024 onwards	2.0%
Others	€k	1,494	1,494	1,494	1,494	1,494	1,494	Constant	0.0%
Operating Costs	**€k**	**14,646**	**25,990**	**24,334**	**22,895**	**21,412**	**20,679**	**(1-EBITDA Margin)**	**-5.6%**
External Supplies and Services	€k	1,511	2,682	2,511	2,362	2,209	2,134	Cost Structure was based on historical structure due to stable distribution	-5.6%
Staff Costs	€k	1,009	1,791	1,677	1,578	1,476	1,425		-5.6%
Other Operating Costs	€k	12,125	21,517	20,146	18,954	17,727	17,120		-5.6%
EBITDA	**€k**	**14,398**	**23,826**	**22,539**	**21,355**	**20,529**	**19,505**	**Moving Average of historical EBITDA Margin**	**-4.9%**
D&A	€k	129	122	115	109	103	97		-5.5%
EBIT	**€k**	**14,270**	**23,705**	**22,424**	**21,246**	**20,426**	**19,408**		**-4.9%**

Appendix 10: Investment Risks- CTT's Group Risks

MR 4 | Market Risk | Credit Risk

Banco CTT's exposure to credit risk arises from its loan portfolio, which could be affected by multiple different factors. The bank addresses this risk through a credit risk assessment methodology that evaluates customers' repayment capacity and defines credit limits. Risk is further mitigated through sector diversification, focusing on mortgage and auto loans, as well as securitization strategies for auto loans to transfer possible risks.

OR 1 | Operational Risk

Operational risks arise from shortcomings or failures in internal processes, systems, human actions, or external events. These risks can significantly disrupt daily operations. Common examples include system outages, inefficiencies in processes, or errors in service delivery, all of which have the potential to impact CTT negatively. These risks are managed through a comprehensive framework integrating risk identification, assessment, and mitigation across all functional units, ensuring compliance with the Internal Control System.

OR 2 | Operational Risk | Cost Savings

Cost control, particularly in the Mail BU, is a fundamental aspect of coping with its relentless volume decline. It is challenging to cut costs without compromising the service quality standards that are imposed by ANACOM. The level of inflation and labor costs are crucial drivers in this challenge. Moreover, the current USO quality standards, updated by ANACOM at the end of 2023 and effective from January 1, 2025, are still above the EU average, burdening CTT with extra effort in terms of operation and hence costs. A prolonged misalignment in this sense would be a further challenge to the cost control strategy.

OR 3 | Operational Risk | Staff Retention

The E&P business is highly seasonal, the peak season starts with Black Friday and ends with the Christmas sales (both these events represent in Q4 ca. 35.5% PT and 26.8% ES of sales for the e-seller). Keeping up with the demand during this period requires additional employees, with a seasonal contract. The reputation and the attractivity of CTT in the job market are relevant in this phase. Recent awards on the best companies to work show CTT has mitigating factors in place, but scarcity in seasonal positions in periods of high demand from several industries is likely and directly affects top-line growth and service quality.

OR 4 | Operational Risk | Implementation Joint Venture & Acquisition

The realization of synergies is uncertain, particularly in light of CTT's expansion into new ventures like CACESA and the geographically dispersed nature of its operations, which adds significant management complexity. Similarly, the Joint Venture with DHL is expected to solidify CTT's position as the largest player in the Portuguese CEP market, with an estimated market share of approximately 34% for CTT Express once the Joint Venture becomes operational. However, this could also signal potential challenges in sustaining such a market share over the long term.

RR | Reputational Risk

Reputation is an important factor of trust in CTT's operating sectors, with risks arising from compliance breaches, operational failures, or negative publicity. Such events can destroy confidence, leading to a loss of customers and potential liquidity pressures. To mitigate this risk, CTT reinforces its Code of Conduct through regular training. Over 4,200 employees participated in anti-corruption training, and 903 employees received targeted instruction on anti-money laundering and counter-terrorism financing. These measures aim to enhance ethical awareness and protect CTT's reputation from the inside.

TCR | Technology & Cybersecurity Risk

As reliance on digital services grows, CTT is increasingly exposed to cybersecurity threats, such as data breaches and operational disruptions. To mitigate these risks, CTT has implemented security controls, policies, and governance structures. It conducts employee training on best practices for telework and raises awareness about cybercrime. Additionally, the Information Security Forum continuously monitors risk exposure and oversees strategic and tactical initiatives to strengthen the overall cybersecurity posture.

LR | Liquidity Risk

Liquidity risk for CTT encompasses the possibility of significant losses arising from a deterioration in financing conditions and the forced sale of assets. CTT actively manages this risk by setting liquidity risk limits, complying with regulatory standards, and monitoring exposure through key risk indicators at least quarterly. However, external shocks and unexpected market conditions could still challenge CTT's ability to maintain adequate liquidity.

ER | ESG Risk

The attention to ESG factors from the customers is substantial. Being able to operate the transition toward a sustainable fleet of vehicles as virtuously as the competitors is crucial. The Iberian e-sellers (70.7% PT, 95% ES) claim they are including the environmental theme in their selling strategy, even if it implies higher delivery costs. CTT has ca. 14% of EVs in its fleet as of 2023.

PRL 1 | Political, Regulatory and Legal Risk | Taxes & Tariffs

The European Commission is considering the abolition of the current IOSS (Import One Stop Shop) that allows third-party countries a simplification on the VAT payment collected by the seller during the purchase. The VAT will be then collected by customs at import. Moreover, the Commission is planning to abolish the EUR 150 custom duty exemption, with effect from March 1, 2028. This change can have a potentially high impact on the final customers, discouraging them from buying goods online that are likely going to be more expensive. CTT curtails these risks by controlling the value chain with its own clearing house.

PRL 3 | Political, Regulatory and Legal Risk | Compliance and Legal

Operating in a regulated environment, Banco CTT must ensure compliance with anti-money laundering and data protection regulations, including GDPR. Failure to comply could result in severe penalties and reputational damage. To mitigate these risks, the bank employs an integrated risk management system, and a governance model structured around the "three lines of defense" framework. This system involves active participation from top management to operational levels, establishing internal controls and adherence to regulatory requirements.

Appendix 11: SWOT Analysis

S

- **Extensive Postal Network:** 2300+ access points, which entails strong distribution network and widespread reach.
- **Strong Brand Loyalty and Trust: Strong Reputation** amongst older demographics and rural communities, all of which represent the largest investor group in Retail Sovereign Debt.
- **Strategic Partnerships:** Exclusive contracts enhance offerings; 5-year deal with Generali Tranquilidade, allowing for eventual segment diversification.

W

- **Revenue Volatility:** Demand sensitivity to changes in deposit rates.
- **Concentrated Revenue Base:** ~72% of FS's revenue is from the distribution of Saving Certificates
- **Brand Reputation tied to Legacy Image:** Whilst older generations rely on CTT, younger demographics might not perceive the brand as the other generations before and thus lose some traction.

O

- **Risk Aversion in the Portuguese Population:** Individual investors seek less risky products with ensured return.
- **Aging Population:** Key demographic in terms of demand for saving certificates demonstrating future reliance in these certificates.
- **Adaptability to Digitalization trends:** Commercialization of Saving Certificates Via App (~6% share of certificates is sold through the APP)

T

- **Market Liberalization:** New players namely, Banco BIG, might pressure commissions and impact CTT's "monopoly" regarding the distribution of saving certificates.
- **Regulatory Risk:** Government Imposed Caps might limit the commercialization of certificates impacting drastically FS's revenues.
- **Shifting Customer Preferences:** Younger demographics prefer digital services, increasing the threat of substitutes as well as reducing demand for certificates.

Appendix 12: Financial Analysis Group

Financial Analysis	2022	2023	2024E	2025F	2026F	2027F	2028F	2029F
Efficiency								
Fixed Assets Turnover (x)	2.99x	3.32x	3.05x	3.58x	4.25x	4.64x	5.01x	5.36x
Total Assets Turnover (x)	0.22x	0.21x	0.18x	0.20x	0.21x	0.21x	0.21x	0.21x
Receivables Turnover (x)	6.16x	6.44x	6.19x	6.77x	7.18x	7.24x	7.32x	7.41x
Collection Period (DSO) (Days)	59	57	59	54	51	50	50	49
Inventory Turnover (x)	5.83x	2.14x	1.87x	1.61x	1.43x	1.41x	1.36x	1.32x
Days in Inventory (DIO) (Days)	63	171	195	227	256	260	268	276
Payables Turnover (x)	0.09x	0.04x	0.05x	0.05x	0.04x	0.04x	0.04x	0.04x
Payables Period (DPO) (Days)	4087	9582	6731	7612	8302	8179	8197	8187
Operating Cycle	122	227	254	281	306	310	318	325
Cash Conversion Cycle (Days)	-3965	-9354	-6477	-7331	-7996	-7869	-7879	-7862
Liquidity								
Current Ratio (x)	0.59x	0.63x	0.69x	0.69x	0.70x	0.71x	0.72x	0.72x
Quick Ratio (x)	0.20x	0.13x	0.12x	0.12x	0.13x	0.13x	0.14x	0.14x
Cash Ratio (x)	0.15x	0.09x	0.08x	0.09x	0.10x	0.10x	0.10x	0.10x
Working Capital	0.46	0.53	0.56	0.55	0.53	0.55	0.56	0.56
Working Capital Requirements	-0.41	-0.22	-0.21	-0.24	-0.25	-0.25	-0.24	-0.24
Net Liquid Balance (WC-WCR)	0.87	0.75	0.76	0.78	0.79	0.80	0.80	0.80
Solvency								
Debt to Equity Ratio (%)	87%	106%	90%	96%	94%	93%	87%	82%
Long and short-term Debt Ratio (%)	5%	6%	5%	5%	5%	5%	5%	5%
Long-term Debt Ratio (%)	5%	6%	5%	5%	5%	5%	5%	5%
Equity Multiplier (x)	18.04x	18.78x	19.01x	18.38x	17.63x	16.91x	16.13x	15.78x
Liabilities to Equity Ratio (x)	18.04x	18.78x	19.01x	18.38x	17.63x	16.91x	16.13x	15.78x
Debt to EBITDA (x)	1.57x	1.87x	1.87x	1.87x	1.87x	1.87x	1.87x	1.87x
Interest Coverage Ratio (x)	6.06x	4.61x	6.10x	6.57x	6.64x	7.02x	6.65x	6.14x
Profitability								
EBITDA Margin (%)	14%	15%	14%	14%	14%	14%	14%	13%
EBIT Margin (%)	6%	8%	8%	8%	8%	8%	8%	7%
Net Profit Margin (%)	4%	6%	5%	5%	5%	5%	5%	5%
ROA (%)	1%	1%	1%	1%	1%	1%	1%	1%
ROIC (%)	9%	12%	9%	10%	10%	10%	10%	9%
ROE (%)	16%	24%	16%	18%	18%	18%	16%	15%
Financial Analysis								
NI (attributable to shareholders) €k	36,407	60,511	46,712	50,145	54,080	60,388	59,167	55,100
Number of Shares	142,415	139,506	138,440	138,440	138,440	138,440	138,440	138,440
EPS	0.25	0.43	0.35	0.37	0.40	0.45	0.44	0.41
Dividends (€k, paid in FY+1)	17,888	23,316	22,257	25,260	24,270	24,450	24,565	26,295
DPS (FY+1)	0.13	0.17	0.17	0.18	0.18	0.18	0.18	0.19
Payout Ratio (CTT's Shareholders, FY+1)	0.49	0.39	0.48	0.50	0.45	0.40	0.42	0.48
Dividend Coverage Ratio (FY+1)	2.04	2.60	2.10	1.99	2.23	2.47	2.41	2.10
Earnings Retention Rate	0.51	0.61	0.52	0.50	0.55	0.60	0.58	0.52
Dividend Yield (Gross, FY+1)	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Expected Growth Rate (gS%)	8%	15%	8%	9%	10%	11%	10%	8%

Appendix 13: Valuation

Company name	Market Cap. (€k)	β 5yr	β Blume Adj.	NAICS Subsector Name	Debt-to-Equity Ratio	Statutory Tax Rates	β Unlevered	Cash Holdings to EV
CTT Correios de Portugal SA	**678,855**	**0.62**	**0.75**	**Postal Service**	**14.64**	**21%**	**0.06**	**16%**
Boa Concept SA	17,346	0.20	0.46	Professional, Scientific, and Technical Services	0.16	25%	0.41	82%
BREMER LAGERHAUS-GESELLSCHAFT AG von 1877	37,764	0.06	0.37	Professional, Scientific, and Technical Services	2.66	35%	0.14	6%
MaltaPost plc	39,025	0.60	0.73	Postal Service	0.06	30%	0.70	16%
Bpost SA	404,877	0.91	0.94	Couriers and Messengers	1.26	25%	0.48	64%
PostNL NV	535,618	0.91	0.94	Postal Service	4.94	26%	0.20	44%
Logwin AG SA	710,648	0.24	0.49	Professional, Scientific, and Technical Services	0.21	25%	0.42	76%
Oesterreichische Post AG	2,012,309	0.29	0.53	Postal Service	5.30	23%	0.10	3%
ID Logistics SAS	2,582,571	0.68	0.79	Truck Transportation	3.34	25%	0.22	8%
Logista Integral SA	4,015,723	0.58	0.72	Professional, Scientific, and Technical Services	0.44	25%	0.54	5%
Compagnie du Cambodge SA	6,686,141	0.60	0.73	Professional, Scientific, and Technical Services	0.00	25%	0.73	32%
InPost SA	8,538,044	1.02	1.01	Couriers and Messengers	5.13	25%	0.21	2%
Poste Italiane SpA	18,782,404	0.93	0.95	Credit Intermediation and Related Activities	8.54	24%	0.13	14%
Deutsche Post AG	42,430,091	1.03	1.02	Postal Service	0.99	30%	0.60	5%

Pure play approach Beta: a Cash Adjustement for Mail and Express and Parcels Business Units has been performed due to the high liquidity detained by CTT Group.

Industry	Average Cash Holdings to EV	CTT's β Unlevered Cash Adj. by segment	CTT's β Levered by segment
Mail	17%	0.49	0.89
E&P	24%	0.54	0.99

Mail FCFE	Unit	2025F	2026F	2027F	2028F	2029F	TV
NOPAT	€k	-6,625	-4,492	-10,447	-17,298	-24,038	
(+) D&A	€k	35,691	33,735	31,887	30,139	28,487	
(-) CapEx	€k	38,180	43,931	37,875	23,050	18,147	
(-) Δ NWC	€k	4,828	2,121	3,378	3,328	1,959	
(-) Interest Expense * (1-T)	€k	6,110	6,568	6,894	7,362	7,746	
(+) Net Borrowings	€k	20,096	20,428	20,157	14,012	10,637	
FCFE	€k	1,832	-1,736	-3,730	-2,217	-6,275	-74,369
PV(FCFE)	€k	1,832	-1,601	-3,172	-1,739	-4,537	-53,774
Equity Value	**€k**	**-62,991**					

E&P FCFE	Unit	2025F	2026F	2027F	2028F	2029F	TV
NOPAT	€k	38,209	44,564	51,515	59,023	64,515	
(+) D&A	€k	14,139	13,364	12,632	11,939	11,285	
(-) CapEx	€k	18,817	22,126	19,314	25,770	32,831	
(-) Δ NWC	€k	-2,427	-3,134	-3,789	-3,928	-2,344	
(-) Interest Expense * (1-T)	€k	4,151	4,462	4,683	5,001	5,262	
(+) Net Borrowings	€k	9,904	10,289	10,279	15,666	19,244	
FCFE	€k	31,923	33,346	41,020	44,664	42,768	542,207
PV(FCFE)	€k	31,923	30,406	34,105	33,852	29,556	374,712
Equity Value	€k	534,554					
Equity Value (CTT 75% stake)	**€k**	**534,554**					

BCTT FCFE	Unit	2025F	2026F	2027F	2028F	2029F	TV
Net Income	€k	10,800	11,783	13,103	14,393	13,067	
FCFE	€k	10,800	11,783	13,103	14,393	13,067	151,532
PV(FCFE)	€k	10,800	10,651	10,707	10,629	8,723	101,158
Equity Value	€k	152,669					
Equity Value (CTT 91.29% stake)	**€k**	**139,372**					

FS FCFE	Unit	2025F	2026F	2027F	2028F	2029F	TV
NOPAT	€k	17,305	16,370	15,510	14,911	14,168	
(+) D&A	€k	122	115	109	103	97	
(-) CapEx	€k	161	158	156	154	154	
(-) Δ NWC	€k	-3,635	954	792	686	445	
(-) Interest Expense * (1-T)	€k	0	0	0	0	0	
(+) Net Borrowings	€k	0	0	0	0	0	
FCFE	€k	20,900	15,373	14,670	14,173	13,667	162,251
PV(FCFE)	€k	20,900	14,038	12,233	10,790	9,501	112,800
Equity Value	**€k**	**180,263**					

Appendix 14: Sensitivity Analysis- Financial Services

IGCP Commission	Growth of SC as a % of Direct Debt						
	-4.3%	-3.3%	-2.3%	-1.3%	-0.3%	0.7%	1.7%
0.1%	6.22	6.22	6.22	6.22	6.22	6.23	6.23
0.2%	6.52	6.53	6.53	6.54	6.54	6.55	6.55
0.3%	6.83	6.83	6.84	6.85	6.86	6.87	6.87
0.4%	7.13	7.14	7.15	7.16	7.18	7.19	7.20
0.5%	7.44	7.45	7.46	7.48	7.49	7.51	7.52
0.6%	7.74	7.76	7.78	7.79	7.81	7.83	7.85
0.7%	8.05	8.07	8.09	8.11	8.13	8.15	8.17

Cost of Equity	SC as a % of Direct Debt						
	3.7%	6.2%	8.7%	11.2%	13.7%	16.2%	18.7%
8.0%	6.59	6.86	7.14	7.42	7.69	7.97	8.25
8.5%	6.52	6.79	7.06	7.32	7.59	7.85	8.12
9.0%	6.47	6.73	6.98	7.24	7.50	7.75	8.01
9.51%	6.42	6.67	6.92	7.16	7.41	7.66	7.91
10.0%	6.38	6.62	6.86	7.10	7.34	7.58	7.82
10.5%	6.34	6.57	6.81	7.04	7.27	7.51	7.74
11.0%	6.30	6.53	6.76	6.99	7.22	7.44	7.67

A sensitivity analysis was performed to better grasp how the Financial Services segment changes when incorporating its main sources of risk as well as the effect of changes in the cost of equity.
Considering this segment's exposure to market conditions, it was computed the potential effects that a change in both the effect of variations on the IGCP Commission as well as the potential changes in the growth of the government on saving certificates, Moreover, the share of saving certificates of total debt was tested alongside the cost of equity.
Overall, the valuation is shown to be robust and even when subjected to stress testing, our recommendation remains unaltered.

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