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Credit Risk

European Banking Sector Report

Nova Information Management School

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2. EXECUTIVE SUMMARY

Portugal's credit risk profile, assessed through key macroeconomic indicators like GDP, unemployment, and inflation, reveals a mixed performance vis-à-vis Europe. Despite a robust GDP initially, Portugal faced economic challenges post-2022, reflected in declining GDP growth and persistently higher unemployment rates.

Nevertheless, inflation trends suggest a more stable economic environment in the forecasted years. Asset composition analysis highlights loans and advances as dominant assets, while equity instruments play a minor role.

While Portugal historically grappled with higher non-performing loans, recent trends indicate improving financial stability. Strategic risk management tools like RAROC offer insights into balancing profitability and risk exposure for lenders.

Portugal witnessed slight asset decline but consistent equity growth, indicative of resilience amidst challenges. Conversely, Europe experienced asset expansion and maintained positive equity growth.

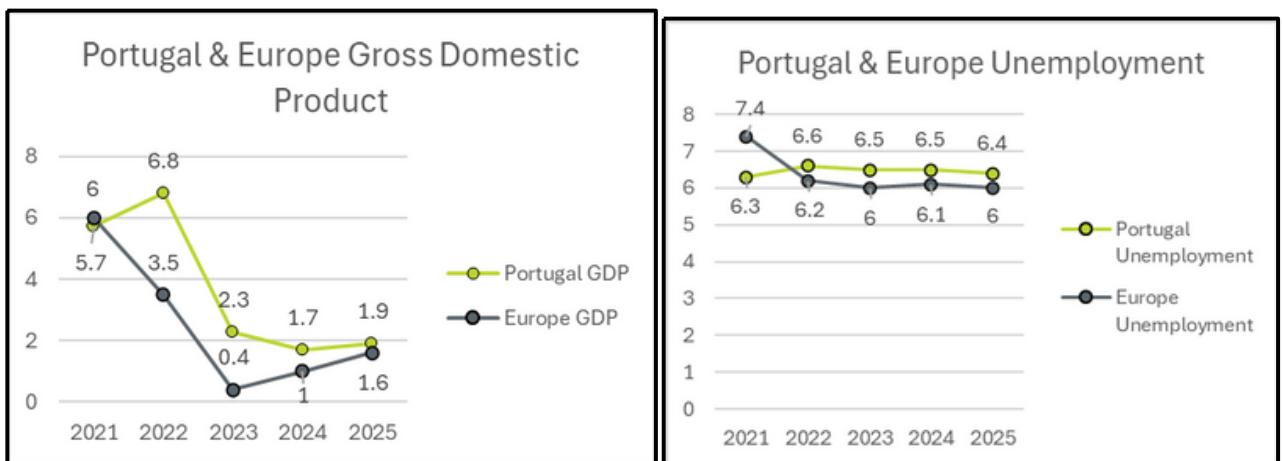
Overall, while Portugal navigates economic headwinds, effective risk management and strategic investments can mitigate credit risks, fostering long-term stability and growth.

3. MACROECONOMIC ENVIRONMENT & MARKET SENTIMENT

3.1 PORTUGAL & EUROPE EVOLUTION

(PAST 3 YEARS CURRENT SITUATION & FORECASTED NEXT 2 YEARS)

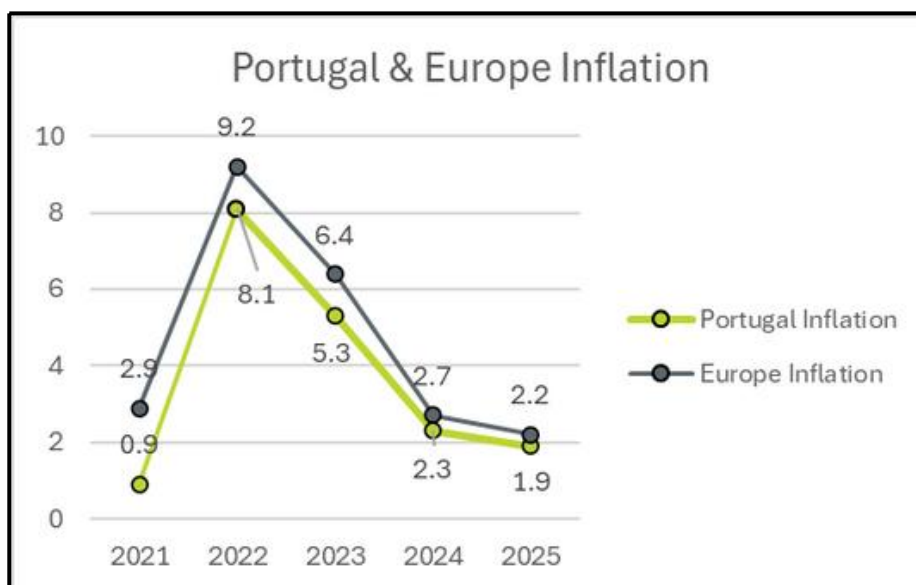
In the Macroeconomic Environment & Market Sentiment, we will focus on Europe & Portugal's Gross Domestic Product, Unemployment, and Inflation variables. We will analyze Portugal's and Europe's behaviors from 2021 to 2025, where the values of 2024 and 2025 will be forecasted.



Graph 1: Portugal & Europe Gross Unemployment (%) (2021-2025) Graph 2: Portugal & Europe Gross Domestic Product (%) (2021-2025)

Observing Graph 1 with the results of Portugal & Europe's Gross Domestic Product we can conclude that Portugal, passes the Gross Domestic Product of European Countries every year, with their highest value in the year 2022 of 6.8%, European Countries with 3.5% but after the year 2022, Portugal has a massive decline in their Gross Domestic Product passing to 2.3%, and then forecasted in the year 2024 with 1.7%, and then to 1.9% in the year 2025.

Concerning Graph 2 with the results of Portugal & Europe Unemployment, we can conclude that Portugal in all years less in the year 2021 has a higher unemployment rate than Europe Unemployment. So, we must increase the work opportunities in Portugal, investing in big and small companies, reducing the interest rates for the enterprises as we will see in the next graph, or invest in programs that support these individuals, for then the Portuguese have more opportunities.

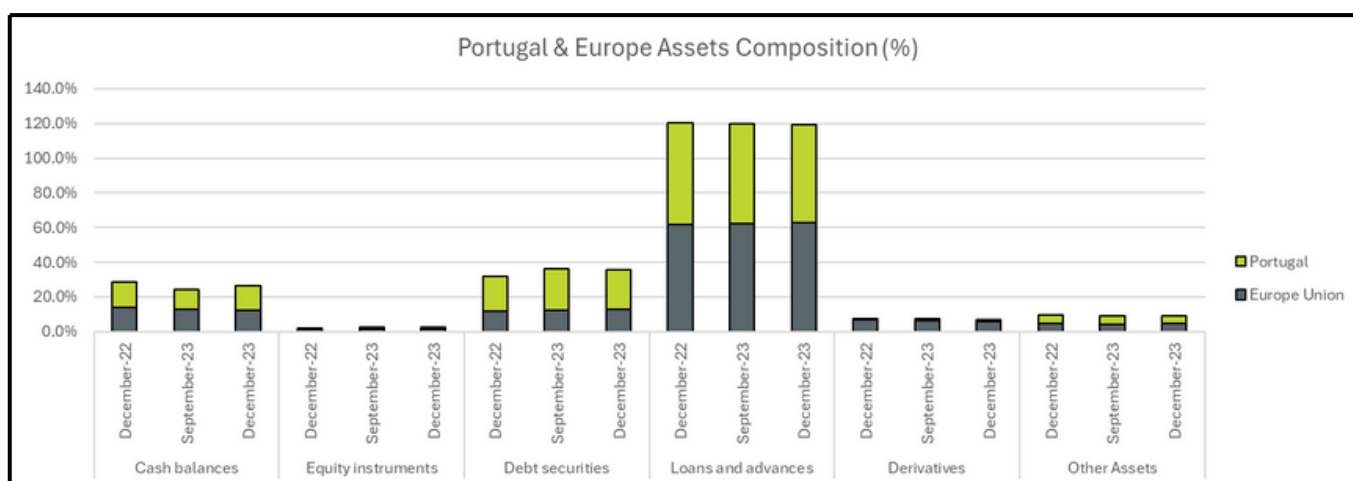


Graph 3: Portugal & Europe Inflation (%) (2021-2025)

In relation to Graph 3 with the results of the Portugal & Europe Inflation, we can conclude that Portugal in the years 2021 to 2023 is always lower regarding the Europe inflation with significant differences, but then in forecasted years 2024 to 2025, we can conclude that they will have similar results. Also, we can observe after the year 2022 inflation will always decrease, meaning we will have a restored confidence in the economy, improve purchasing power, and create a more stable economic environment for Portugal.

4. BANKS' ASSETS EVOLUTION

4.1 PORTUGAL & EUROPE ASSETS COMPOSITION

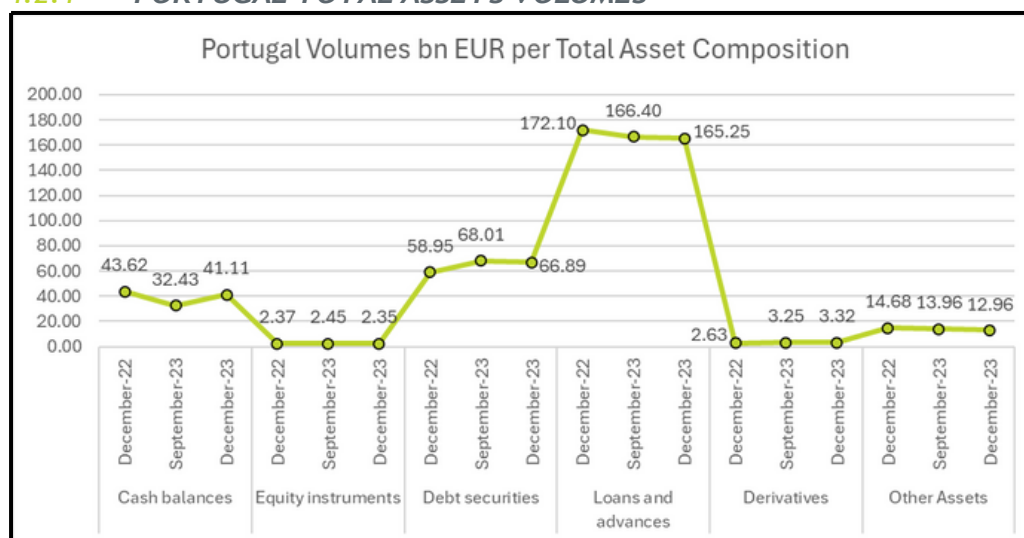


Graph 4: Portugal & Europe Assets Composition (%) (2022-2023)

Observing Graph 4 with the results of Portugal & Europe's Assets composition during the years 2022 to 2023, we can conclude the main assets of Portugal and Europe are Loans and Advances, and the second one is debt securities, and the lowest one is Equity Instruments for both Portugal and Europe.

4.2 TOTAL ASSETS VOLUMES PORTUGAL & EUROPE

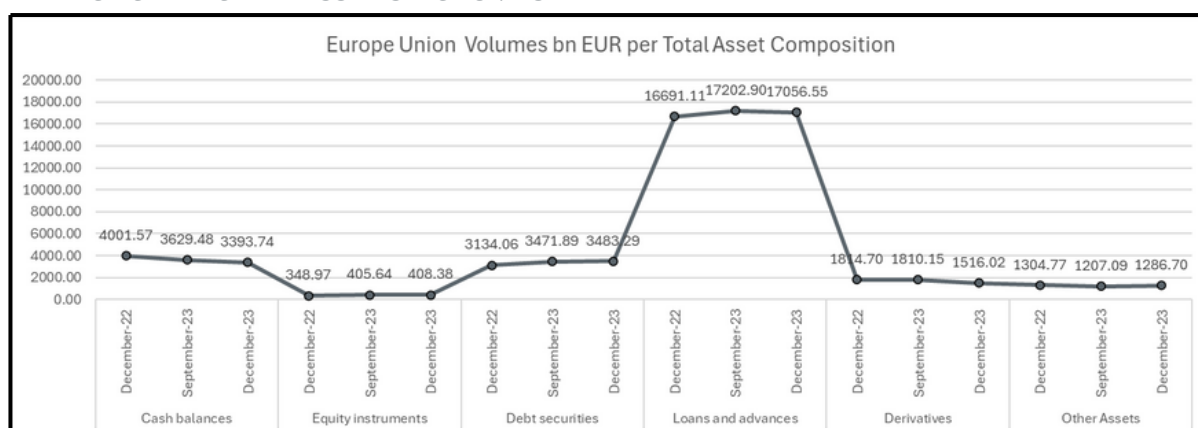
4.2.1 PORTUGAL TOTAL ASSETS VOLUMES



Graph 5: Portugal's Total Assets Composition Volumes in billion of EUR (2022-2023)

Observing Graph 5 with the results of Portugal's Total Assets composition volumes in billions of euros during the years 2022 to 2023, we can conclude the main assets of Portugal are Loans and Advances with 172 billion euros in December 2022 as we saw before, and then until December of 2023 decreased to 165.25 billion of euros. The Asset that had the lowest influence as we saw before is Equity Instruments, which had only 2.37 billion euros in December 2022, and then until December 2023 decreased to 2.35 billion euros.

4.2.2 EUROPE TOTAL ASSETS VOLUMES

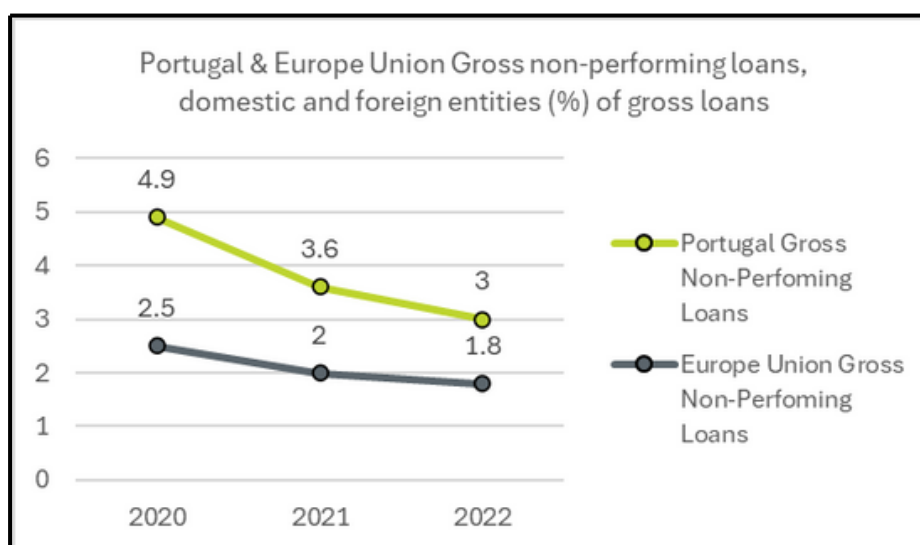


Graph 6: Europe's Total Assets Composition Volumes in billion of EUR (2022-2023)

Concerning Graph 6 with the results of Europe's Total Assets composition volumes in billions of euros during the years 2022 to 2023, we can conclude the main assets of Europe are Loans and Advances with 16691.11 billion euros in December 2022 as we saw before, and then until December of 2023 increased to 17056.25 billion of euros. The Asset that had the lowest influence as we saw before is Equity Instruments, which had only 348.97 billion euros in December 2022, and then until December 2023 increased to 406.38 billion euros.

5. ASSET QUALITY PORTUGAL & EUROPE

5.1 PORTUGAL & EUROPE UNION GROSS NON-PERFORMING LOANS, DOMESTIC AND FOREIGN ENTITIES (%) OF GROSS LOANS



Graph 7: Portugal & Europe Union Gross non-performing loans, domestic and foreign entities (%) of gross loans (2020-2022)

Portugal experienced higher percentages of non-performing loans compared to the European Union from 2020 to 2022, reflecting economic instability due to factors like the COVID-19 pandemic and sectoral vulnerabilities, but the decline in these percentages over the years signifies improving financial stability and economic recovery. So the probability of the non-default in Portugal will be for 2020 (95.1%), for 2021 (96.4%), and for 2022 (97%) on the loans. Now, focusing on the Corporates Specialized Lending data from European Banking Authority Results for the 75th percentile, we had a default rate of 1.32%. So, 98.68% of loans were performed efficiently

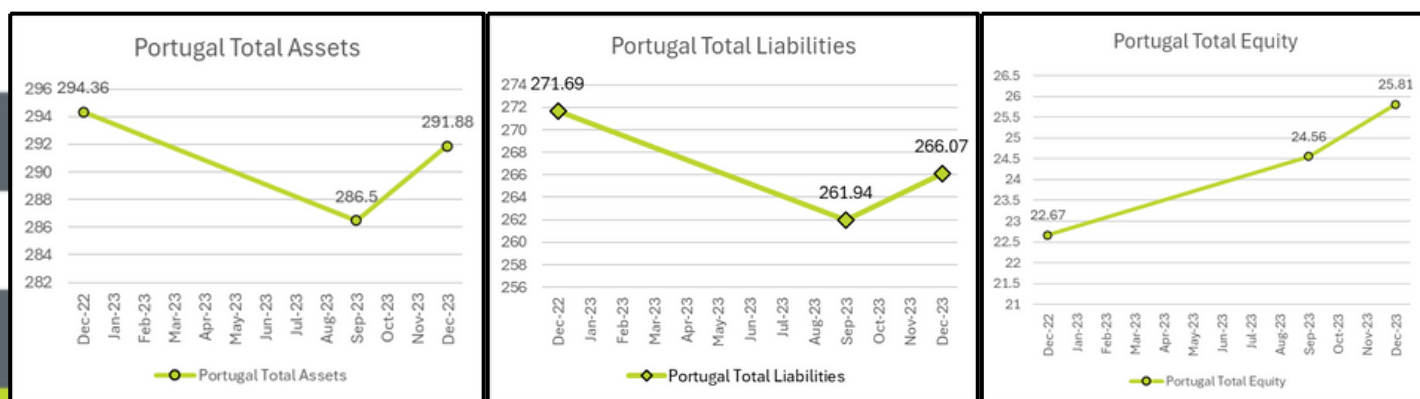
because most of the Portuguese loans have longer maturities, they have low interest rates and low amounts for payback leading to a low risk of default of their loans. We can observe also a Loss Given Default of 45% (the lender expects to lose 45% of the exposure at default). So, with a recovery rate of 55% of the loan's value. A very high value, because the legal framework and the judicial capacity are not efficient, so must be improved, for that, we can have solutions such as the existence of courts and judges who are specialized in insolvency cases, as well as the possibility of electronic communication between the courts and the insolvency administrators.

6. CREDIT RISK AND CAPITAL

6.1 CREDIT RISK IMPORTANCE NOWADAYS & RAROC IDEA

Nowadays, managing credit risk is crucial for preventing insolvency in economies. Lenders can better forecast market conditions and make informed lending decisions using predictive models that analyze past and present data. One instrument we can use is the RAROC (Risk Adjusted Return on Capital), a "risk-based profitability measurement framework for analyzing risk-adjusted financial performance and providing a consistent view of profitability across businesses", to help us measure the risk in the investments. If we have a higher RAROC compared to Capital Costs the bank will have value addition if we have a lower RAROC compared to Capital Costs the business process destroyed value, and if RAROC is equal to Capital Costs maintained value.

6.2 PORTUGAL TOTAL ASSETS, LIABILITIES, AND EQUITY



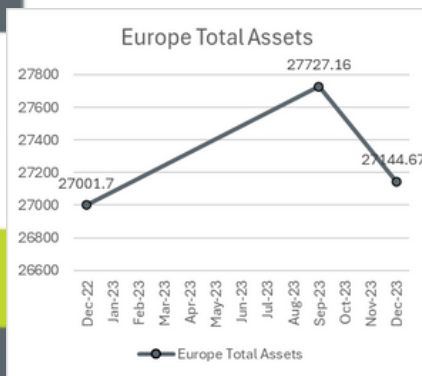
Graph 8: Portugal Total Assets (billion of Euros)

Graph 9: Portugal Total Liabilities (billion of Euros) (2022-2023)

Graph 10: Portugal Total Equity (billion of Euros)

Observing Graph 8, Graph 9, and Graph 10 from the Total Assets, Total Liabilities, and Total Equity of Portugal we can conclude that Portugal had a decrease from 2022 to 2023 of 2.48 billion euros, also a 5.62 billion euros decrease in their liabilities, and having an increase in all years in their equity.

6.3 EUROPE TOTAL ASSETS, LIABILITIES, AND EQUITY



Graph 12: Europe Total Assets (billion of Euros)



Graph 13: Europe Total Liabilities (billion of Euros) (2022-2023)



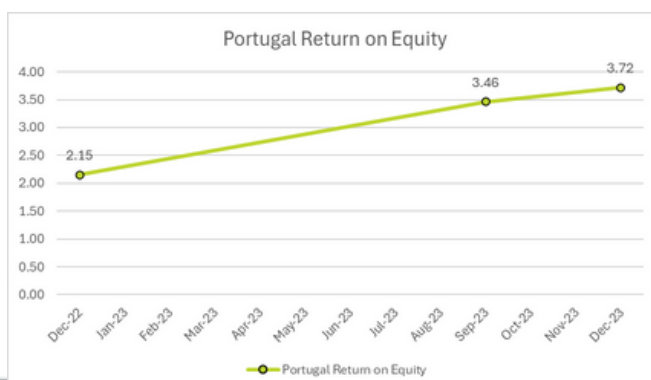
Graph 11: Europe Total Equity (billion of Euros)

Observing Graph 11, Graph 12, and Graph 13 from the Total Assets, Total Liabilities, and Total Equity of Europe we can conclude that Europe had an increase from 2022 to 2023 of 142.97 billion euros, also a 20 billion euros increase in their liabilities from 2022 to 2023, and having an increase in all years in their equity.

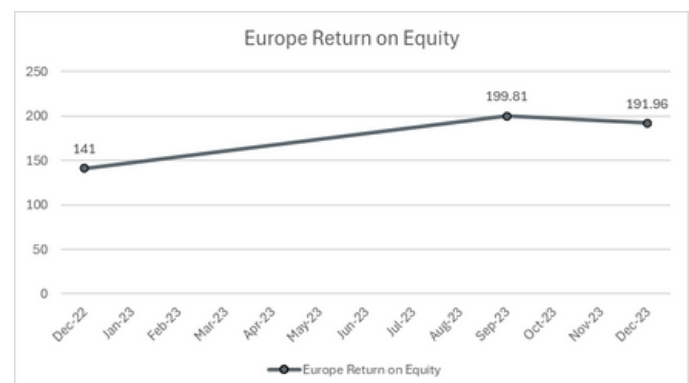
7. CREDIT RISK AND PROFITABILITY

As we saw before in graphs 10, and 13 from Europe & Portugal Equities we can observe that they are controlling their economy because they are increasing passing the years.

7.1 PORTUGAL & EUROPE RETURN ON EQUITY



Graph 15: Europe Total Assets (billion of Euros)



Graph 14: Europe Return on Equity (billion of Euros) (2022-2023)

Now by observing graphs 14 and 15 from Europe & Portugal's Return on Equities, they are controlling their economy because they are increasing over the years. Portugal increased from December 2022 to December 2023 by 1.57 billion euros, and Europe increased from December 2022 to December 2023 by 50.96 billion Euros.

8. *CONCLUSIONS*

From a risk perspective, the main issues in Portugal include high unemployment rates, persistent non-performing loans, and potential GDP growth decline. Data analysis could involve calculating debt-to-income ratios, analyzing default probabilities based on historical loan performance, and stress-testing portfolios against various economic scenarios to assess current and future credit risks.

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