Dynamic Risk Profiling and Performance Analysis in Consumer Lending

Objective:

The objective of this case study is to apply advanced data analysis techniques using Excel to deeply understand and effectively manage a loan portfolio. This involves assessing loan risk profiles, evaluating financial performance metrics, gaining insights into borrower behaviours, and ultimately, developing a comprehensive, interactive Excel dashboard. These efforts aim to provide strategic recommendations for optimizing loan portfolio management, mitigating risks, and enhancing decision-making processes for financial institutions and stakeholders in the consumer lending sector.

Dataset link: [C:\Users\Tilak R\Desktop\loan_final313_.csv](C:\Users\Tilak R\Desktop\loan_final313_.csv)

Key Finding's from the dashboard:

We have followed a structured approach where we meticulously cleaned the data, analysed the data and created insights using visualization from the dataset.

We have divided the analysis into two dashboards,

1.**Summary Dashboard**: Provides the summary of the entire dataset and provides insightful insights.

2.**Overview Dashboard:** Provides the overview of the entire dataset and provides insightful insights.

<u>Summary Dashboard Key Feature's:</u>

1. The Total Loan Application were found out to be **70 K**.

2.The Total loan amount was **984.4 million dollars**.

3.Total Payment Received was **840.4 million dollars**.

4.Average interest rate was found out to be **13.69.**

5. Average DTI was found out to be **16.99.**

6.Total Good loan percentage is **87.19**.

7.Bad loan percentage is **12.81**.

8.Ulster had the highest loan amount among the regions with **243.7 million dollars while Munster has the lowest loan amount with 114.4 million dollars.**

Purpose: The purpose of the loan (e.g., debt consolidation, home improvement).

Types of purpose:

1.Car

2.Credit card

3.Debt Consolidation

4.Educational

5.Home improvement

6.House

7.Major Purpose

8.Medical

9.Moving

10.Other

11.Renewable energy

12.Small business

13.Vacation

14.Wedding

Grade wise summary:

Grade: The loan grade, which is typically an assessment of the loan's risk.

A ➡ B ➡ C ⟹ D ➡ E ➡ F

Grade wise summary for Medical purpose :

It has 85.08 % Good loan and 14.92 % Bad loan.

Grade	Total Loan Application	Total Loan Amount (Million $)	Total Payment Received (Million $)	Averege Interest rate	Average DTI
A	100	0.8	0.8	7.32	12.71
B	200	1.4	1.2	11.44	14.74
C	200	1.3	1.1	14.54	17.93
D	200	1.3	1.1	17.76	17.39
E	100	0.7	0.7	20.68	16.40
F	0	0.4	0.3	23.83	17.59
G	0	0.1	0	24.94	14.12

<u>Overview Dashboard Key Feature's:</u>

1. Default rate was **14.53 in 2013** which was found to be highest and lowest was found to be in **2007 with 11.86.**

2.It is evident that interest rate is decreasing over the years i.e it was **32% in 2007** and **8% in in 2014.**

3.The demand for loan amount has been increasing significantly over the years with 2013 being the highest **with 437.8 million dollars**.

4.People have preferred **60 months as Term Analysis with 51.8k count.**

5.Group wise profit is clearly evident that **grade C** has the highest profit percentage and grade G has the lowest profit percentage.

6.Ulster has the highest total amount with **243.7 million dollars.**

7.In terms of House ownership **Mortgage** has the highest **loan application** followed **by Rent and Own**.

8.The Default rate **forecasting** for the next **five years** was calculated and found out that in 2020 it could go to **negative(-0.02).**

9.The loan amount forecasting was estimated that it could **sharply increase** in the next five years and will be **highest in 2020**.

<u>Strategic Recommendations</u> <u>from industry point of view:</u>

1. Enhance Data Analysis and Management:

   o Automate data cleaning and standardize data formats.

   o Incorporate interactive features and diverse visualizations in dashboards.

   o Utilize predictive modelling and segmentation analysis for better insights.

2. Improve Risk Management:

   o Implement dynamic risk profiling and regular stress testing.

   o Monitor loans continuously and integrate customer feedback.

3. Focus on Regional and Product Strategy:

   o Prioritize regions with high demand and profitability, such as Ulster.

   o Develop strategies to increase loan uptake in regions like Munster.

   o Customize loan products based on customer needs and preferences.

4. Invest in Technology and Training:

   o Adopt advanced analytics tools and provide training to staff.

   o Maintain detailed documentation and regular reporting to ensure transparency and informed decision-making.

Conclusion:

The report demonstrates a robust approach to loan portfolio management through meticulous data cleaning, detailed analysis, and insightful visualizations. By following the strategic recommendations, the banking institution can optimize its loan portfolio, mitigate risks, and enhance decision-making processes, ultimately driving better financial performance and customer satisfaction.