Part 1: Summary of the data

Portfolio Balance

- The total balance for sale is £4694924.98 and £661067.20 has already been collected, leaving a maximum possible balance of £4033857.78.
- From the forecast data provided, over the next 10 years, until July 2034, Perch can expect to receive £1606061.35. Calculating the NPV, using the BOE target inflation rate (2%) as the discount rate, the present value would be £1500459.74. Perch would need to acquire this portfolio for significantly less than £1500459.74 to generate meaningful returns, especially considering the real inflation rate over the past few years.
- Figure 1 shows the trend of monthly income from the portfolio. After the initial purchase, there is an expectation that the monthly payments will increase to a peak of £35795.44 after a year, before steadily decreasing over time.
- The historical trend is that monthly payments have been steadily decreasing. A potential explanation for initial increased forecasted payments could be attributed to a renewal of effort to collect the remaining debt. If that is the case, if Perch Group can leverage its branches and keep debtors accountable for their debt, there is a chance that more of the portfolio debt could be recovered.

Portfolio Risk

- There have been 1,678 instances of 0 payments across all accounts in a month, which is 13.63%.
- Of the 947 accounts, 614 debtors have missed at least 1 payment, and 172 have missed 30% of payments and are considered risky accounts. A caveat is that more research could be conducted on whether these missing payments were sanctioned, but for now, it will be assumed that they are unscheduled.
- Figure 2 shows potential evidence to suggest that January incurs lower missed payments, perhaps due to New Year resolutions. However, this quickly stops and the general trend of Figure 2 is an increase in missed payments. Diving deeper into the cause of this will be important to determine the recoverability of the portfolio.
- A concerning figure is the Coefficient of Variation for the portfolio of 155.67%. This suggests that the returns of the investment portfolio could be highly volatile, and whether the forecasted returns have taken this into account is uncertain. The lack of a regular payment structure for the debts in the portfolio raises many questions and is certainly a large factor for Perch to consider when accounting for the risk of the portfolio.

Portfolio Demographics

- Demographic data is attached for your reference, data is split into safe accounts, risky accounts and the full range of data. Data is segmented into size of debt (Figure 3), title of debtor (Figure 4), age group (Figure 5) and homeowner status (Figure 6).
- From a visual perspective, there is not much difference between the profiles of the safe and risky accounts.
- Risky accounts contain more debts in the range of £1001-£5000, are slightly younger and have a lower homeownership rate, but the sample size is small and further tests would need to be conducted to determine correlation within the dataset. Further research into profiles of safe and risky accounts would be potentially useful to improve the forecast accuracy.

Further considerations

- Information on the makeup of the portfolio is necessary to determine whether to buy it or not. Being able to understand the nature of the accounts means a deeper risk assessment can be carried out and the true value of the portfolio clearer.
- How reliable the forecast is will play a large role in the valuation of the portfolio. Other methods such as an ARIMA model could be used to predict the future trend of the returns, albeit the sample size is relatively small.
- Calculating the costs of collection will be useful to determine the profitability of the portfolio.
- If the seller has a good relationship with Perch, and previous purchases have been successful then this portfolio may be less risky.
- Gathering further information on any agreed payment plans will help ACI with the collection of the debt.

Conclusion

- Portfolio has a large amount of uncollected debt, but the NPV of forecasted income suggests that the absolute maximum amount Perch should pay for the portfolio is £1500459.74, before taking into account costs, risk, investment horizon and Perch's own IRR target.
- Further research should be done to get a better understanding of the portfolio, and thus get a better understanding of potential risks.

Part 2: Pricing the portfolio

1. **Assuming a cost to collect of 10%, what are the net collections forecast over the life of the portfolio?**

   Total forecasted collections = 1,606,061.31
   NCF = 1,606,061.31 * 0.9
   = £1445455.19

2. **If Perch are targeting an IRR of 15%, what would be the purchase price (net present value) we would look to pay for this portfolio?**

$$NPV = \sum_{t=0}^{n} \frac{Rt}{(1+i)^t}$$

$$NPV = \frac{7302}{(1+\frac{0.15}{12})^1} + \frac{18252}{(1+\frac{0.15}{12})^2} + \frac{13487}{(1+\frac{0.15}{12})^3} + \frac{22916}{(1+\frac{0.15}{12})^4} + \ldots + \frac{4947}{(1+\frac{0.15}{12})^{119}}$$

   (Full calculations provided with code in analysis.ipynb under 'Net Present Value')

   NPV = **£1023619.57**

   -> assumption that money is collected end of the month and collection starts from September 2024
   -> not calculated with costs taken into account

3. **Perch have agreed a purchase price of £1m, to be paid in August 2024, what would the IRR be at this purchase price?**

   Using Numpy IRR and Excel IRR functions: 17.1%

   'Reverse engineered' on Python trial and error then plugging into NPV calculator: 15.908%

   (Full calculations provided with code in analysis.ipynb under 'Interest Rate of Return')

Appendix

General Statistics

Total Value of Debt	**£4694924.98**
Total Debt Paid Off	**£661067.20**
Total Forecasted Future Income	**£1606061.35**
NPV (Based of BOE target inflation rate of 2%)	**£1500459.74**
Missed Payments	**1678**
Percentage	**13.63%**
Total Accounts/Borrowers	**947 (After cleaning data)**
Safe Accounts	**333**
Risky Accounts	**277**
Coefficient of Variation	**155.67%**

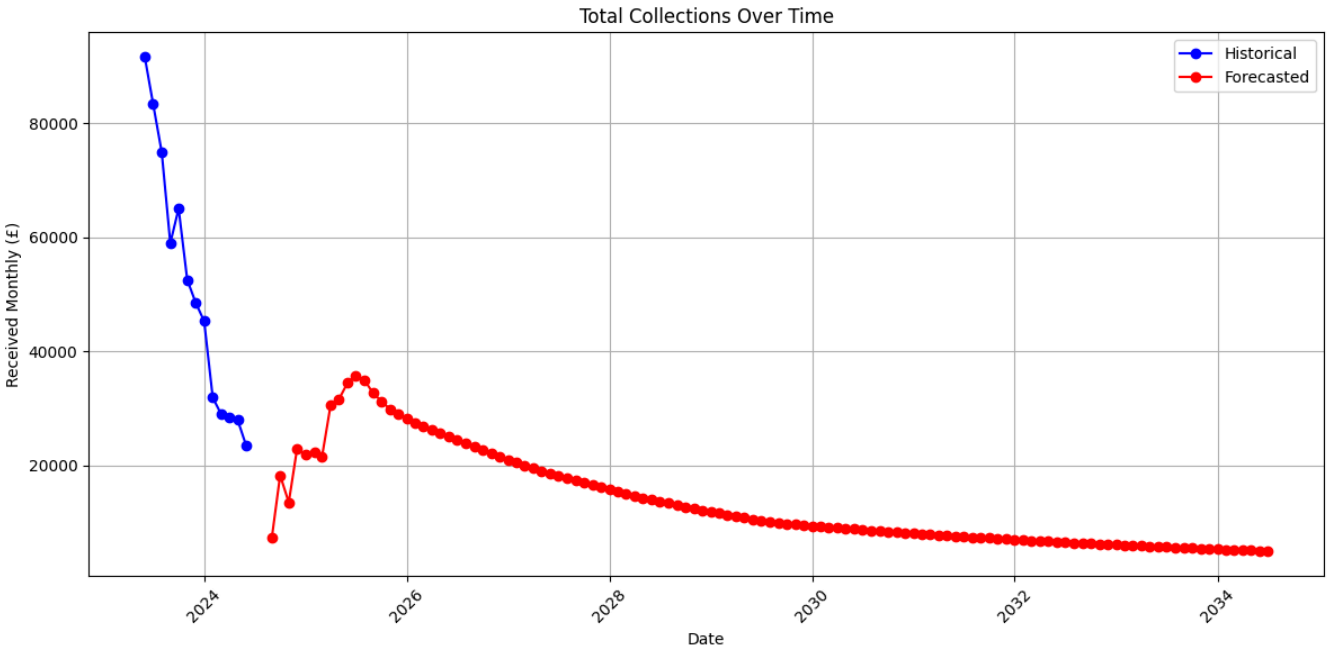

Figure 1

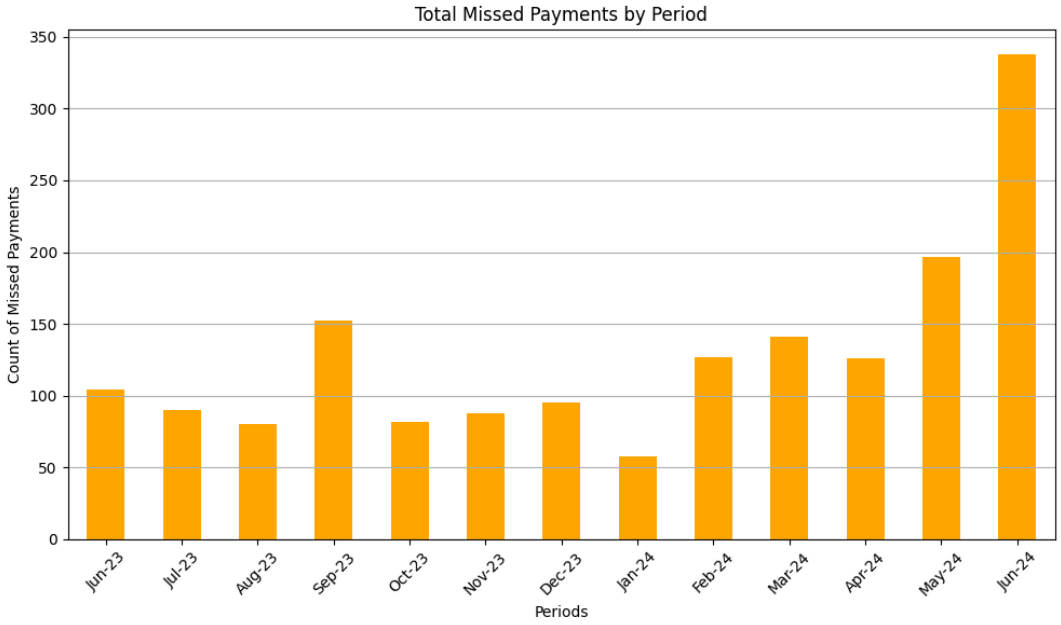

Figure 2

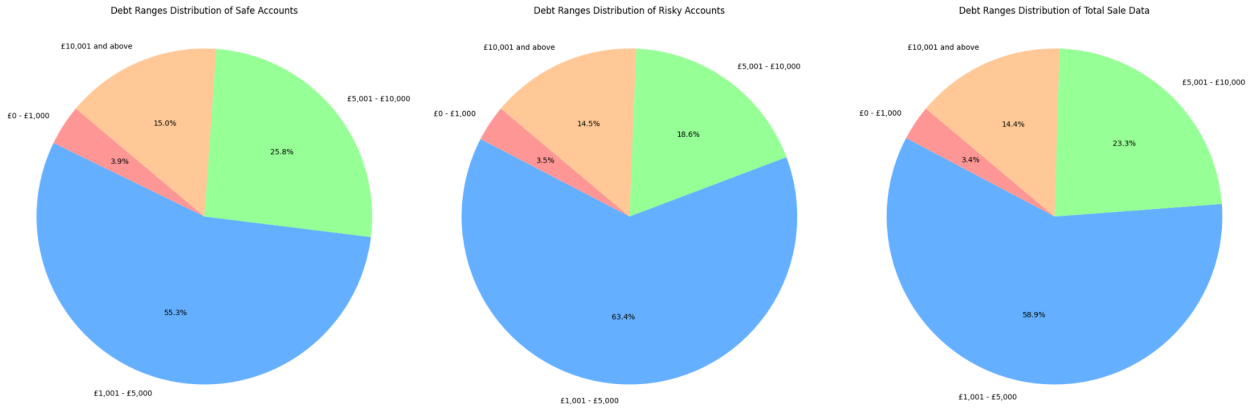

Figure 3

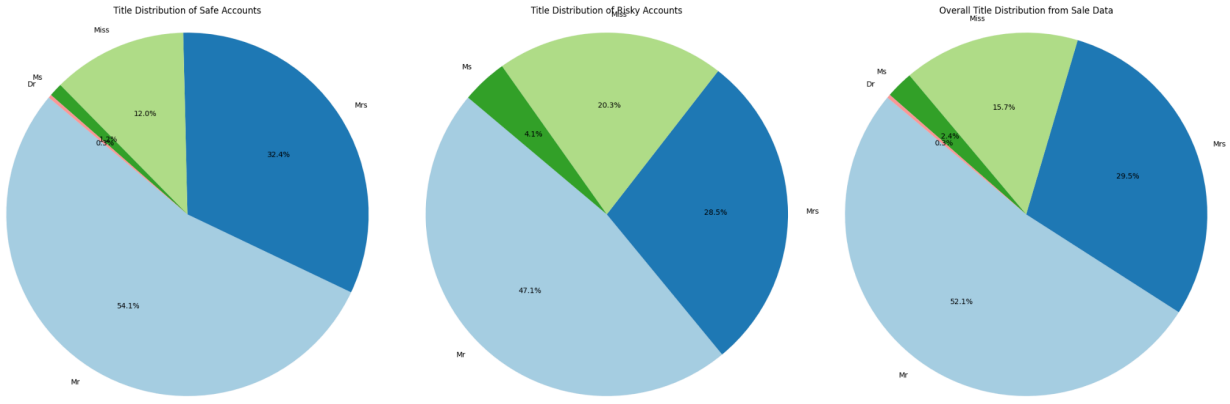

Figure 4

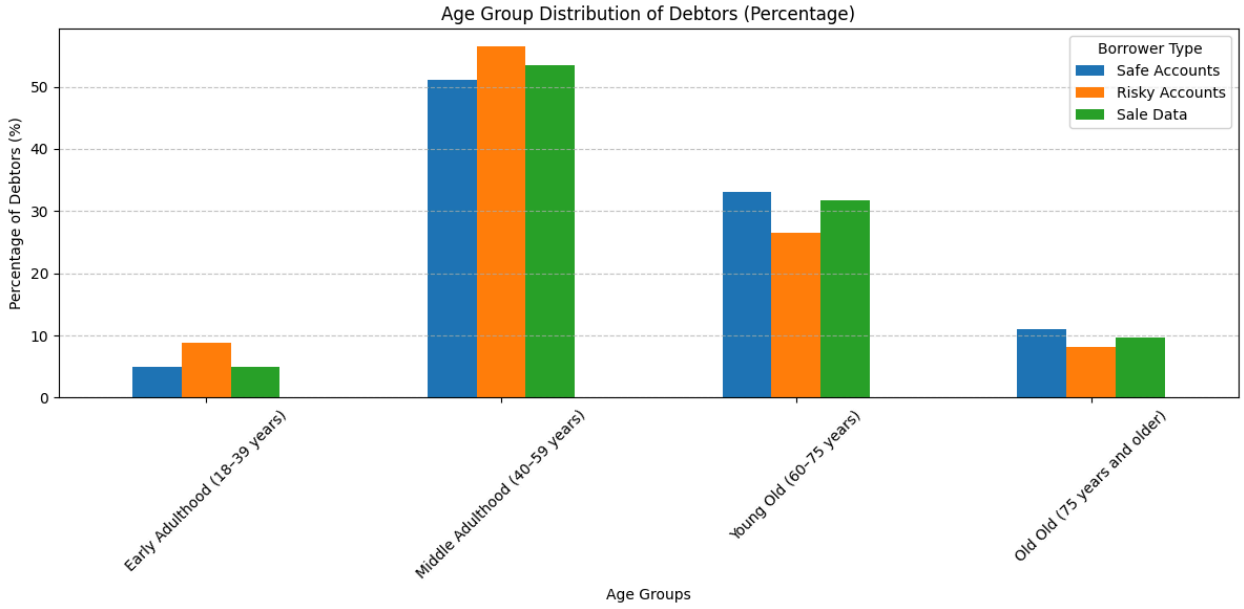

Figure 5

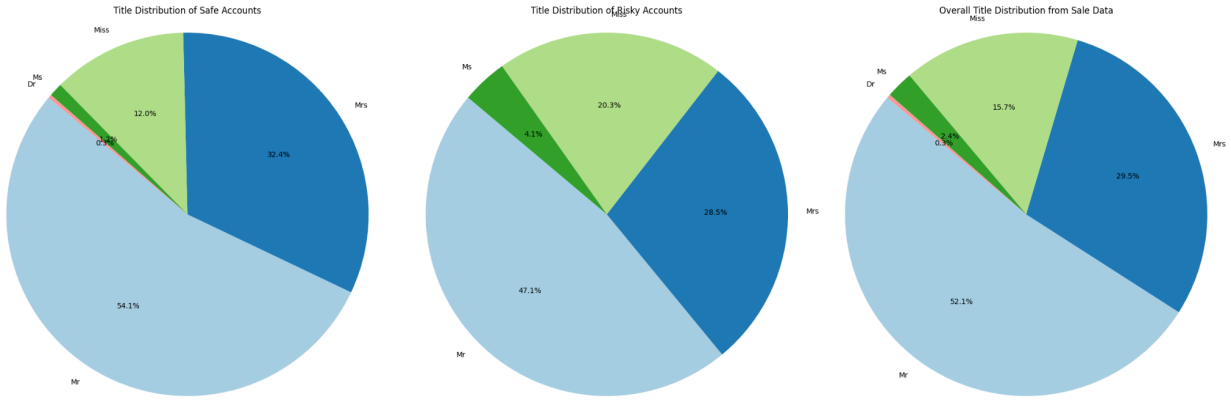

Figure 6