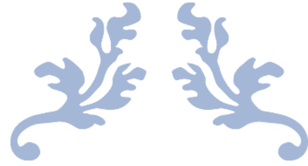


CHARGE-OFF AND LENDERS REVENUE

basics

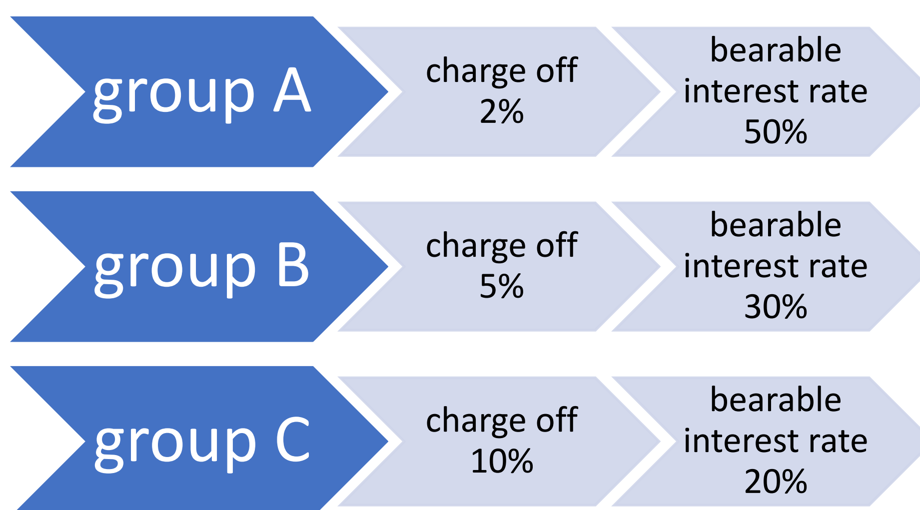
JANUARY 6, 2020

EPA USA INC
Rowland Heights

LENDING SEGMENTS

Different groups of population might be a part of different lending segment. For the purpose of this study it is going to be used different charge off % of all loans provided as a main criterium to define segments. It has also to be stated, that it is not true, that people with higher salary or certain race are going to be less risk and people from different race or sex are going to be riskier. All depends on the segmentation and assessment to loan underwriting. Therefore, groups to be selected are random.

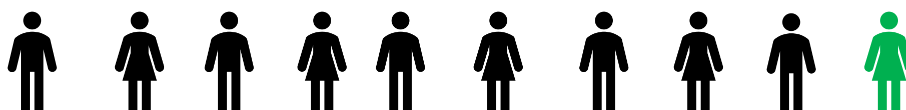
Figure 1: Different segment groups



As mentioned on Figure 1 we have three different groups. Group A, Group B and Group C. All groups have different charge-off % and different bearable interest rate depending on their capacity to repay the debt.

Charge off behavior

Charge-offs are influencing the performance of the portfolio. Let's say we have 10 borrowers:



With charge-off of 10% one of these borrowers will on average not repay his/hers debt at all (green). Let's calculate what revenue will the lending company generate if the interest rate is 10% p.a. and loans are given for one year to be repaid by the end of the year by one payment.

Table 1: Lender's revenue

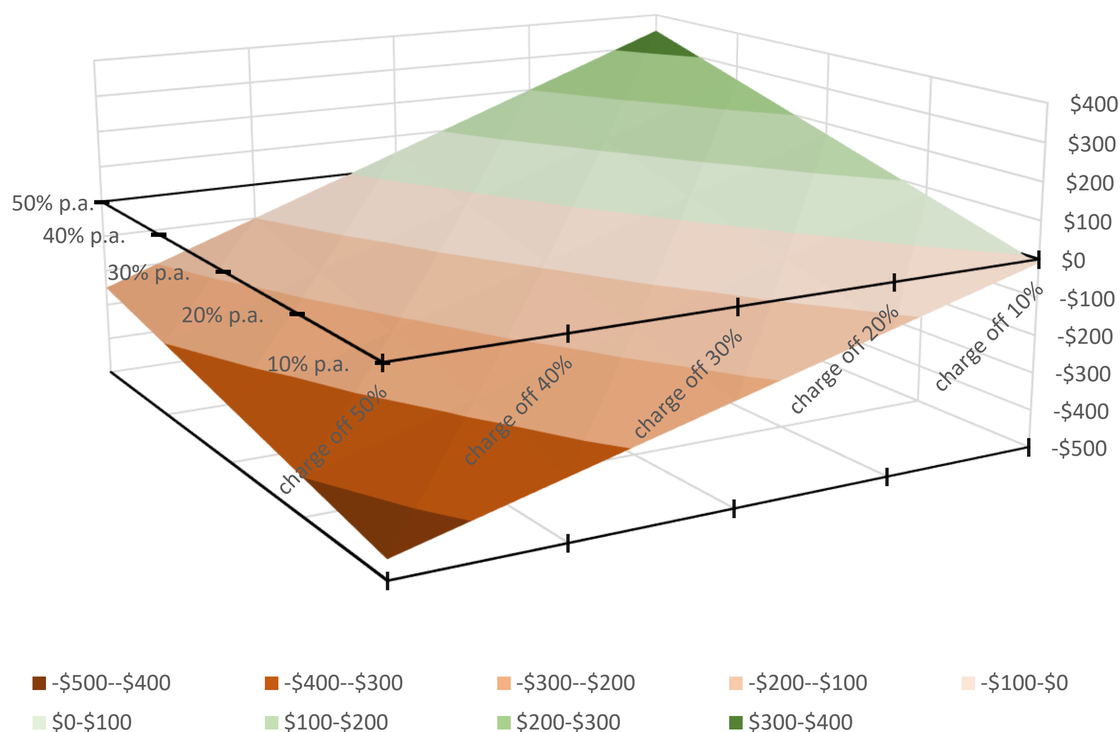
Lender	Loan provided	Repayment	Revenue
1...9	9*100	9*110	10*10
10	1*100	0	-100
TOTAL	**1,000**	**9*110 + 0 = 990**	**-10**

Creditor did provide loans of $1,000 and 9 people did pay back their loans. But they did not generate enough money even with the interest of 10% for the creditor to have any revenue at all. That means no money to pay for creditor's staff, for the rent, to investors or to shareholders.

Charge off and interest rate

Looking on a charge off from accounting point of view as a moment in which there is almost no probability of repayment of the loan allows us to plot a graph. This graph is presenting revenue of lender depending on interest rate he charges(10-50% p.a.) and charge-offs (10-50%).

Graph 1: Interest rate / charge off / revenue



Graph 1 is showing what is happening with revenue of the company depending on the charge off (LGD is set to 100% of loan). It is a nice illustration of the fact, that interest rate of 50% p.a. with charge off of 50% will still push the lender to loss of -$250. This does not mean, that lender will be in loss of $250 USD, it means again the lender did not generate any money to repay any of it's costs, none.

In our simple example the formula looks like this:

$$\textbf{revenue of creditor} \\ = amount\ of\ paying_lenders * loan\ per\ paying_lender * (1 + interest\ rate) \\ - amout\ of\ not_paying_lenders * loan\ per\ non_paying\ lender$$

Table 2: Table of values -> revenue

charge off /interest rate	10% p.a.	20% p.a.	30% p.a.	40% p.a.	50% p.a.
charge off 10%	-$10	$80	$170	$260	$350
charge off 20%	-$120	-$40	$40	$120	$200
charge off 30%	-$230	-$160	-$90	-$20	$50
charge off 40%	-$340	-$280	-$220	-$160	-$100
charge off 50%	-$450	-$400	-$350	-$300	-$250

Table 2 shows clearly what is happening in terms of real revenue of the company. Red/pink space shows all the combinations and below where lending company does not generate any revenue.

Table 3: Table of values -> profit

profit with 5% lender portfoflio service	10% p.a.	20% p.a.	30% p.a.	40% p.a.	50% p.a.
charge off 10%	-$60	$30	$120	$210	$300
charge off 20%	-$170	-$90	-$10	$70	$150
charge off 30%	-$280	-$210	-$140	-$70	$0
charge off 40%	-$390	-$330	-$270	-$210	-$150
charge off 50%	-$500	-$450	-$400	-$350	-$300

Table 3 shows the profit of the lender once we presume 5%[1] portfolio management costs. This presumption might not work for many FinTech lenders and it shows the correlation of portfolio services and profit of the lender.

Table 4:ROA

ROA	10% p.a.	20% p.a.	30% p.a.	40% p.a.	50% p.a.
charge off 10%	-6.00%	3.00%	12.00%	21.00%	30.00%
charge off 20%	-17.00%	-9.00%	-1.00%	7.00%	15.00%
charge off 30%	-28.00%	-21.00%	-14.00%	-7.00%	0.00%
charge off 40%	-39.00%	-33.00%	-27.00%	-21.00%	-15.00%
charge off 50%	-50.00%	-45.00%	-40.00%	-35.00%	-30.00%

Table 4 shows green space once we consider a reasonable return on assets provided by investors to FinTech lenders (now around 15%). It is clearly visible, that only 40% p.a.[2] returns per portfolio are reasonable with 10% charge-off.

REMARKS

This text is aiming to show how important is charge-off to revenue of the lender. For this study we did simply the text by two presumptions:

a) charge of 10% means that 10% of total sum of loans provided are not paid back
b) loans are given for the period of one year and paid back by one shot payment by the end of the year

[1] 5% might be too low for lenders providing small loans, for small lenders or on a cost/data/verification challenging markets

[2] 40% p.a. is considered in terms of return per money lent -> it might be a combination of interest rate, fees, penalties and so on.