

# PRODUCT ANALYST ASSESSMENT

*By  
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# DATA STATISTICS

- **59K** Accounts
- **29K** applied at **Branch** and **29K** applied at **Dealer**
- **11K** members with co- borrower
- **FICO** range **850** (Excellent) to **550** (Bad)
- **14K New vehicles** and **44K Used vehicles**
- **Write-Off** accounts **587**



# PROJECT OBJECTIVE

## Financial analysis

- Analyze all the possible cases where company is loosing money and experiencing losses.

## Market impact

- Identify the accounts which do not produce any values and the accounts which will yield higher profits in the future.

## Member impact

- Anayze different points where the customer/ members stands profitable by associating with this company.



# NEW VARIABLE

- Numbers of years as a member ( $\text{Present Date} - \text{Member Since}$ )
- Loan maturity period ( $\text{Maturity Date} - \text{Funded Date}$ )
- Fund to income percent ( $\text{Funded amount} \% \text{ Yearly Income}$ )



# IMPORTANT CORRELATIONS

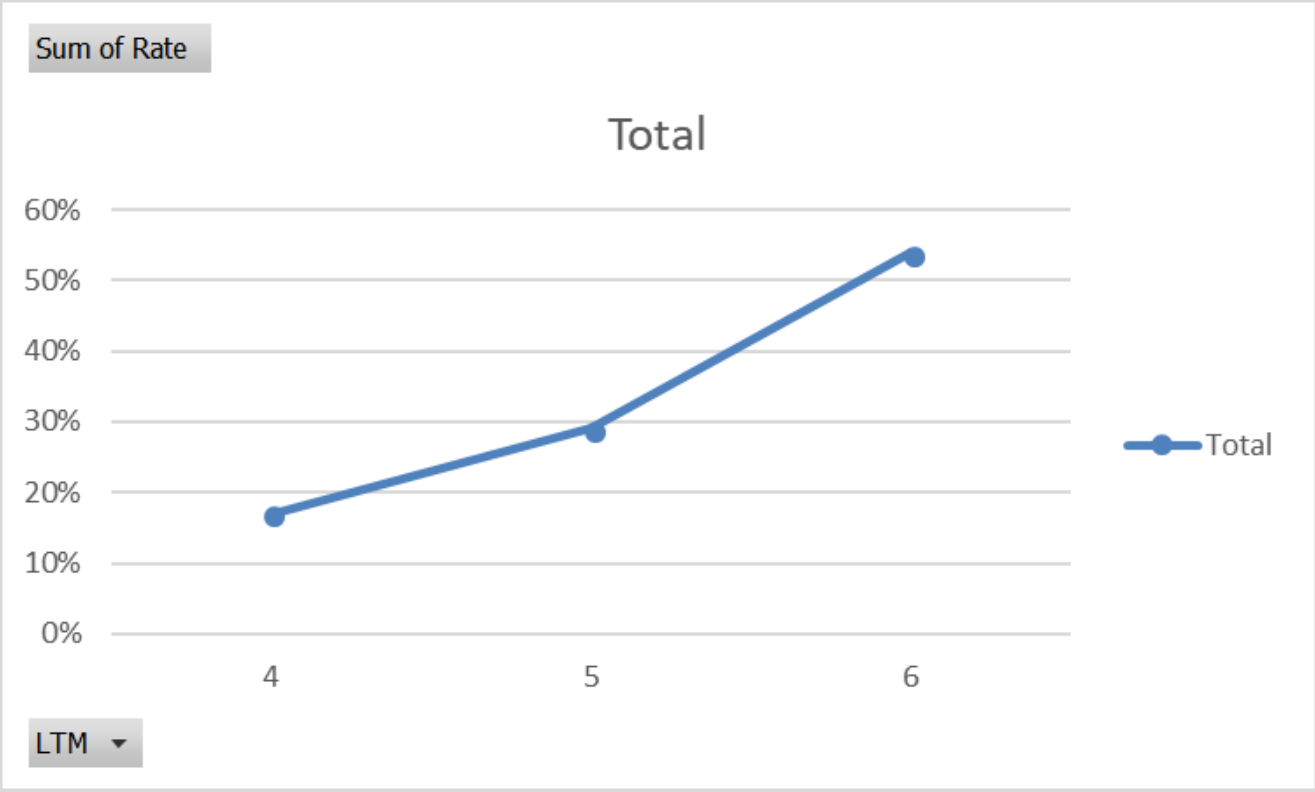
	Co-Borrower	Current Balance	Delinquent:	FICO	Funded Amount	Interest Rate:	Member Yearly Salary	Vehicle Value:	Write-Offs
Co-Borrower	1.00	0.00	-0.06	0.00	0.00	0.25	0.00	0.00	-0.04
Current Balance	0.00	1.00	0.11	-0.02	0.56	-0.03	0.45	0.52	0.02
Delinquent:	-0.06	0.11	1.00	0.20	-0.04	-0.16	0.07	0.01	0.34
FICO	0.00	-0.02	0.20	1.00	-0.01	-0.56	-0.01	-0.01	0.13
Funded Amount	0.00	0.56	-0.04	-0.01	1.00	-0.08	0.79	0.92	-0.03
Interest Rate:	0.25	-0.03	-0.16	-0.56	-0.08	1.00	-0.15	-0.18	-0.11
Member Yearly Salary	0.00	0.45	0.07	-0.01	0.79	-0.15	1.00	0.85	0.04
Vehicle Value:	0.00	0.52	0.01	-0.01	0.92	-0.18	0.85	1.00	0.00
Write-Offs	-0.04	0.02	0.34	0.13	-0.03	-0.11	0.04	0.00	1.00



# LOAN TO MATURITY PERIOD

Loan to maturity period (years)	% of delinquency
4	17%
5	29%
6	54%

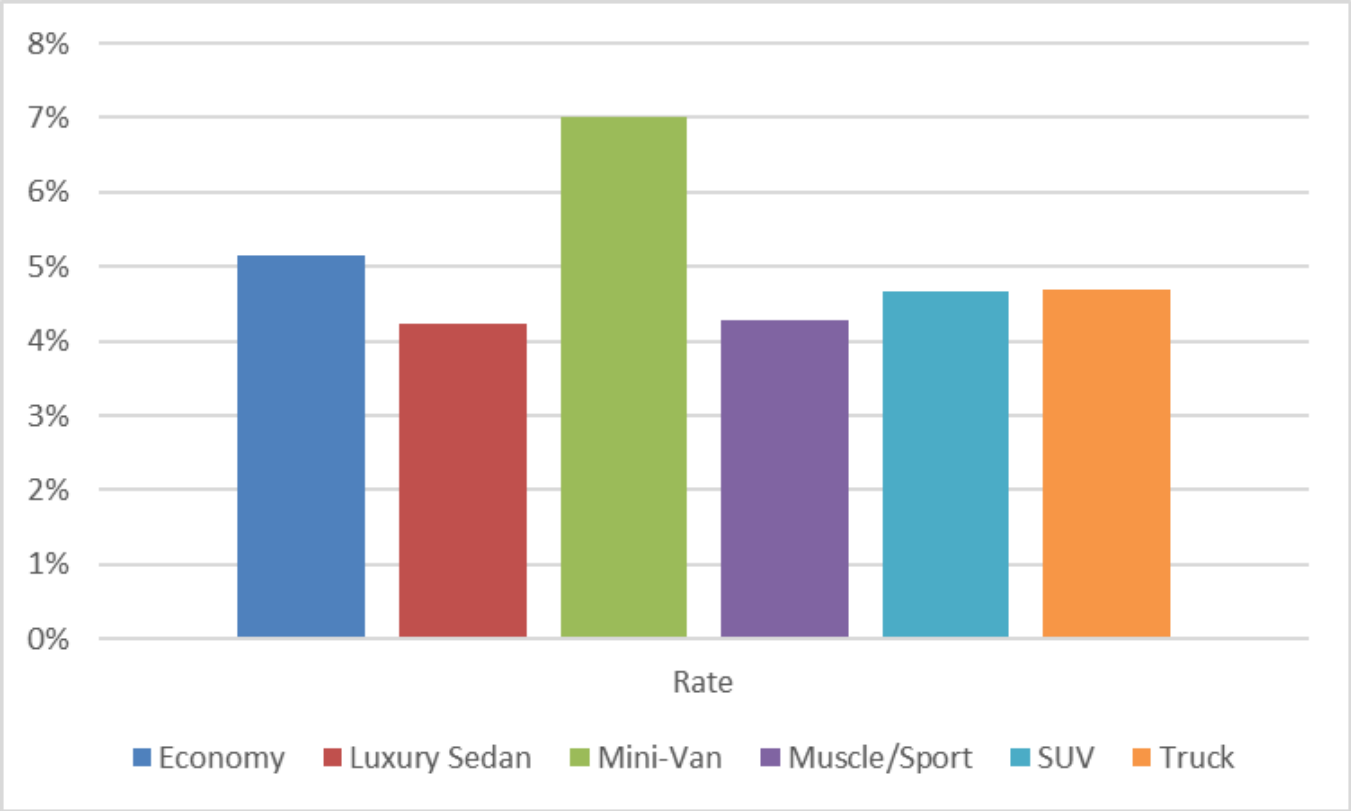
More number of years, increases the chance of delinquency



# VEHICLE TYPE VS. DELINQUENT

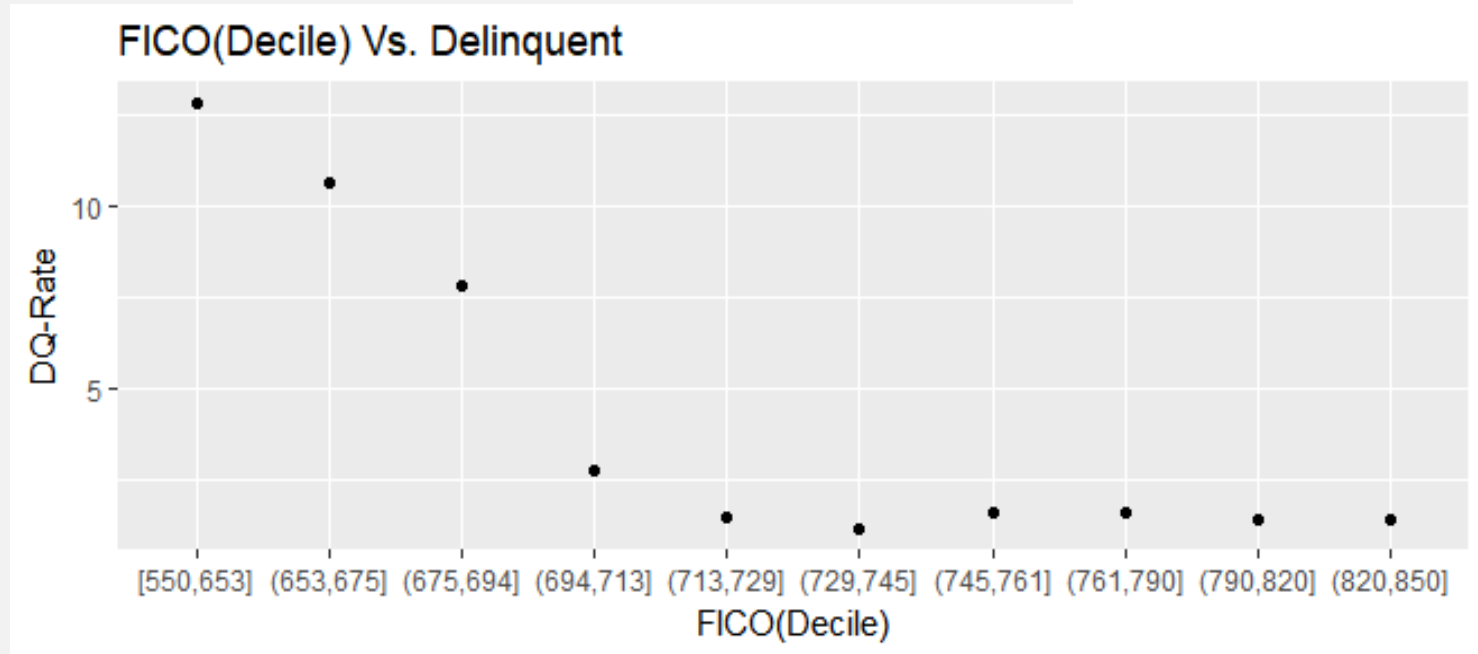
Vehicle Type	Delinquent Rate
Economy	5%
Luxury Sedan	4%
Mini-Van	7%
Muscle/Sport	4%
SUV	5%
Truck	5%

Highest delinquency rate is for Mini-Van



# FICO DECILE VS. DELINQUENT RATE

FICO decile z	Delinquent	Listings Count	Delinquent Rate
(550,653)	758	5899	12.8
(653,675)	641	6014	10.66
(675,694)	461	5869	7.85
(694,713)	164	5920	2.7
(713,729)	84	5713	1.47
(729,745)	69	6120	1.1
(745,761)	91	5830	1.56
(761,790)	90	5782	1.
(790,820)	83	5852	1.42
(820,850)	83	5829	1.4



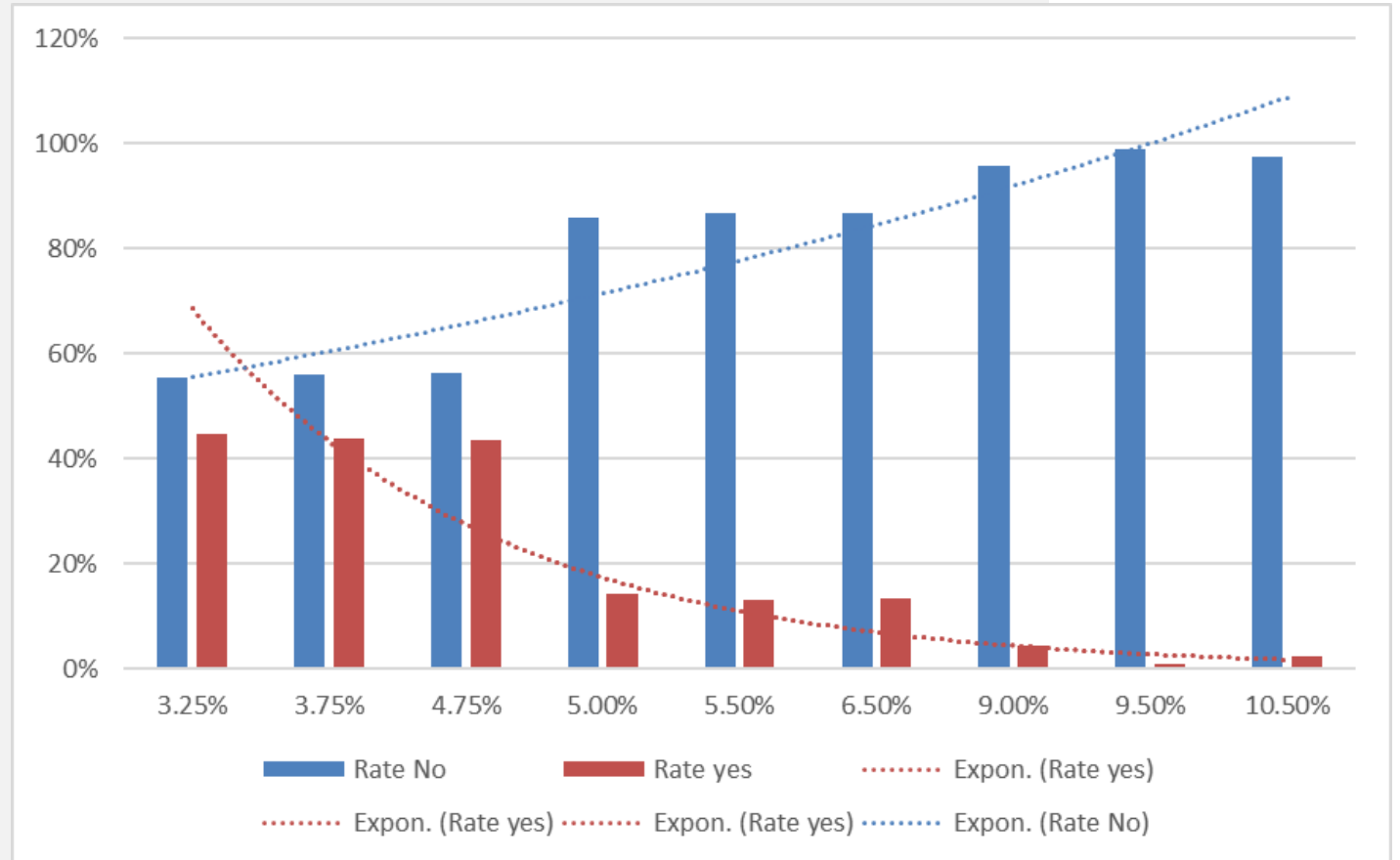
FICO score in the range (550, 653) are most likely to fall under delinquent category



# CO-BORROWER VS. INTEREST RATE

Interest Rate	Without co-Borrowers	With co-Borrowers
3.25%	55%	45%
3.75%	56%	44%
4.75%	56%	44%
5.00%	86%	14%
5.50%	87%	13%
6.50%	87%	13%
9.00%	96%	4%
9.50%	99%	1%
10.50%	97%	3%

Members with **Co-Borrowers** are having less **interest rates**



# QUANTIFYING DEPENDENCIES

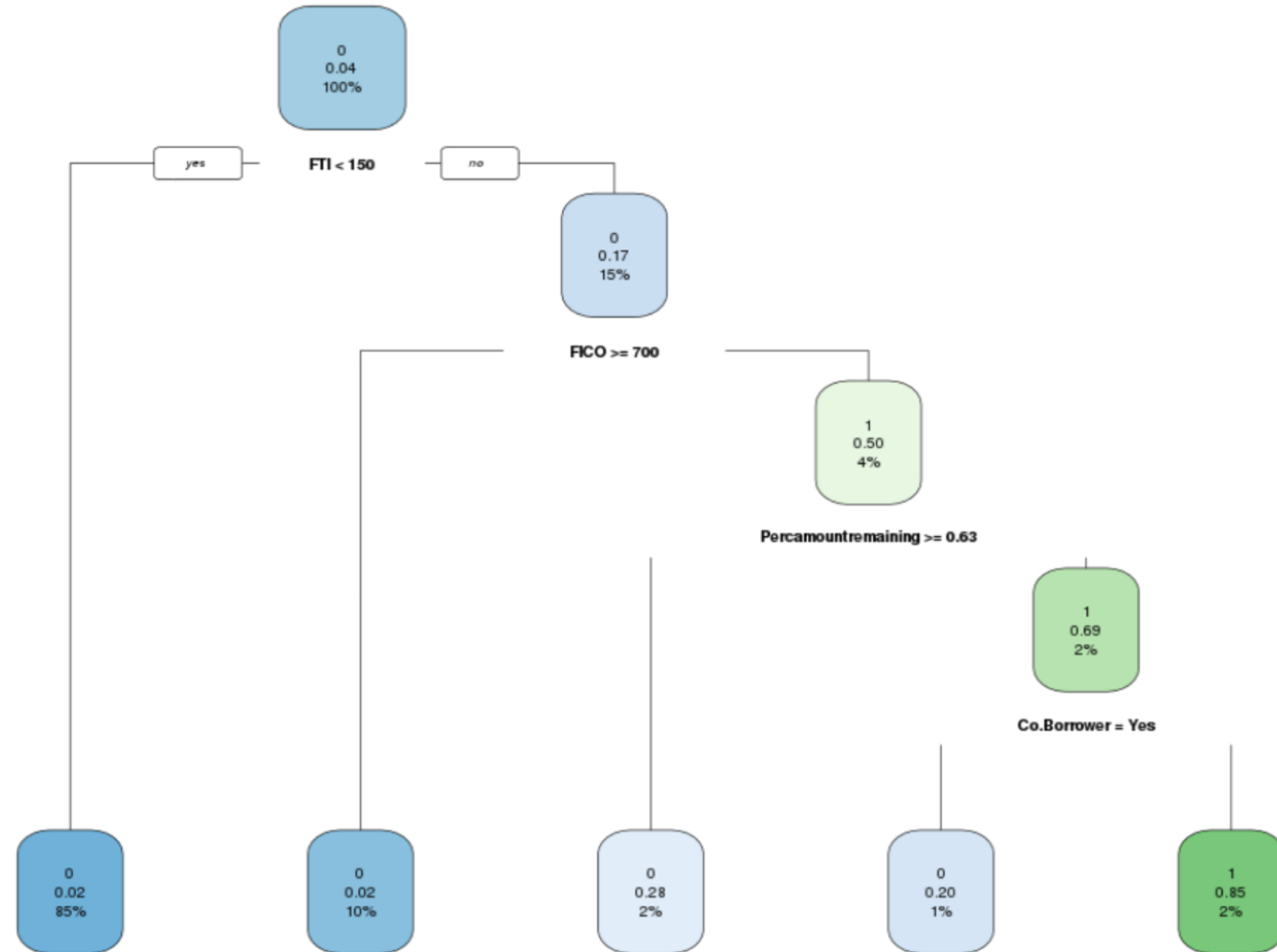
- According to **Information Value** test the most significant numerical variables related **delinquency** :

FICO	FTI	% of balance remaining	Interest Rate	Current Balance	Vehicle Value	Yearly Salary	Funded Amount	Vehicle Year	Loan Maturity Period	Member Years	Age
0.949413	0.9091982	0.7089242	0.6540806	0.4164571	0.2313054	0.21821	0.2115688	0.2039589	0.1371318	0.0756069	0.0390566

- According to  $\chi^2$  test the most significant categorical variables related **delinquency** :

Co- Borrower
New/ Used Vehicle
Vehicle Type

# MODEL: *CLASSIFICATIONS*

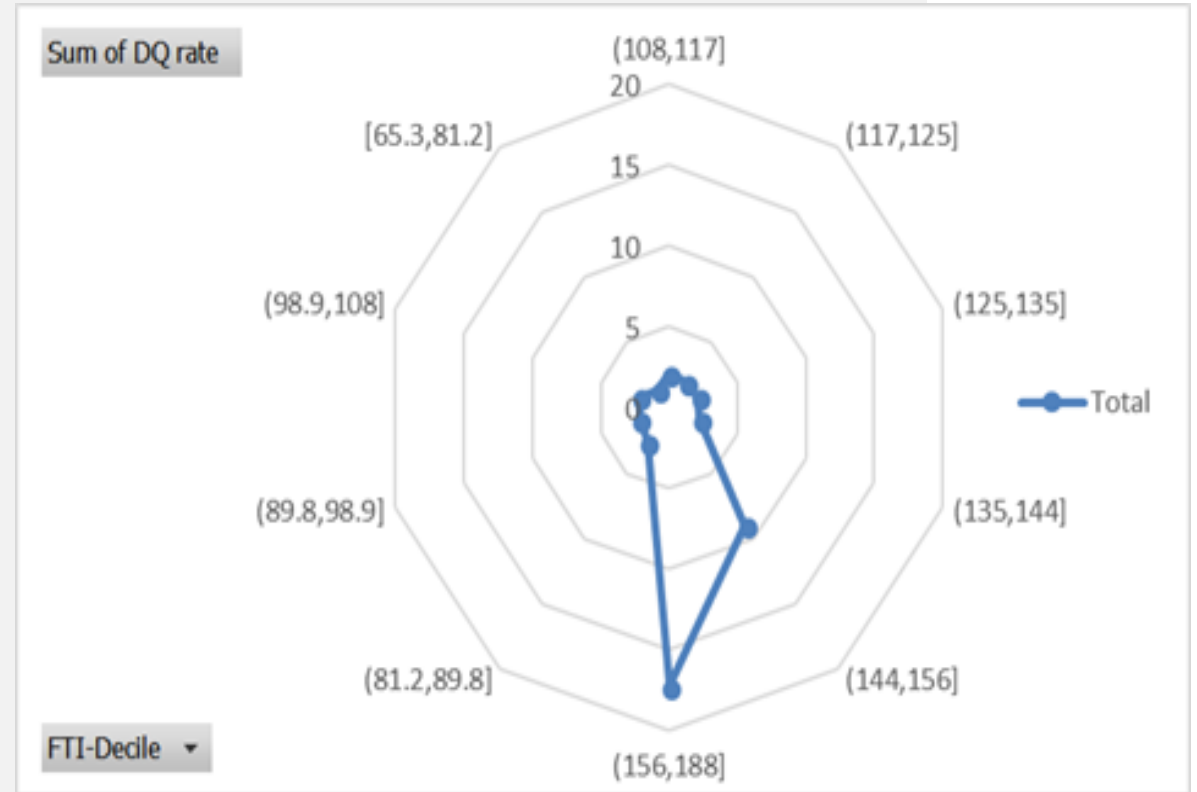


From **Classification model**, even though company is giving **high interest rate** with **less FICO** score – it is not compensating the losses caused by **Delinquencies** and **write-offs**.

- FICO < 700 delinquency percent is 2x more than that of FICO > 700
- Company is incurring maximum loss by funding amount over the member annual income.

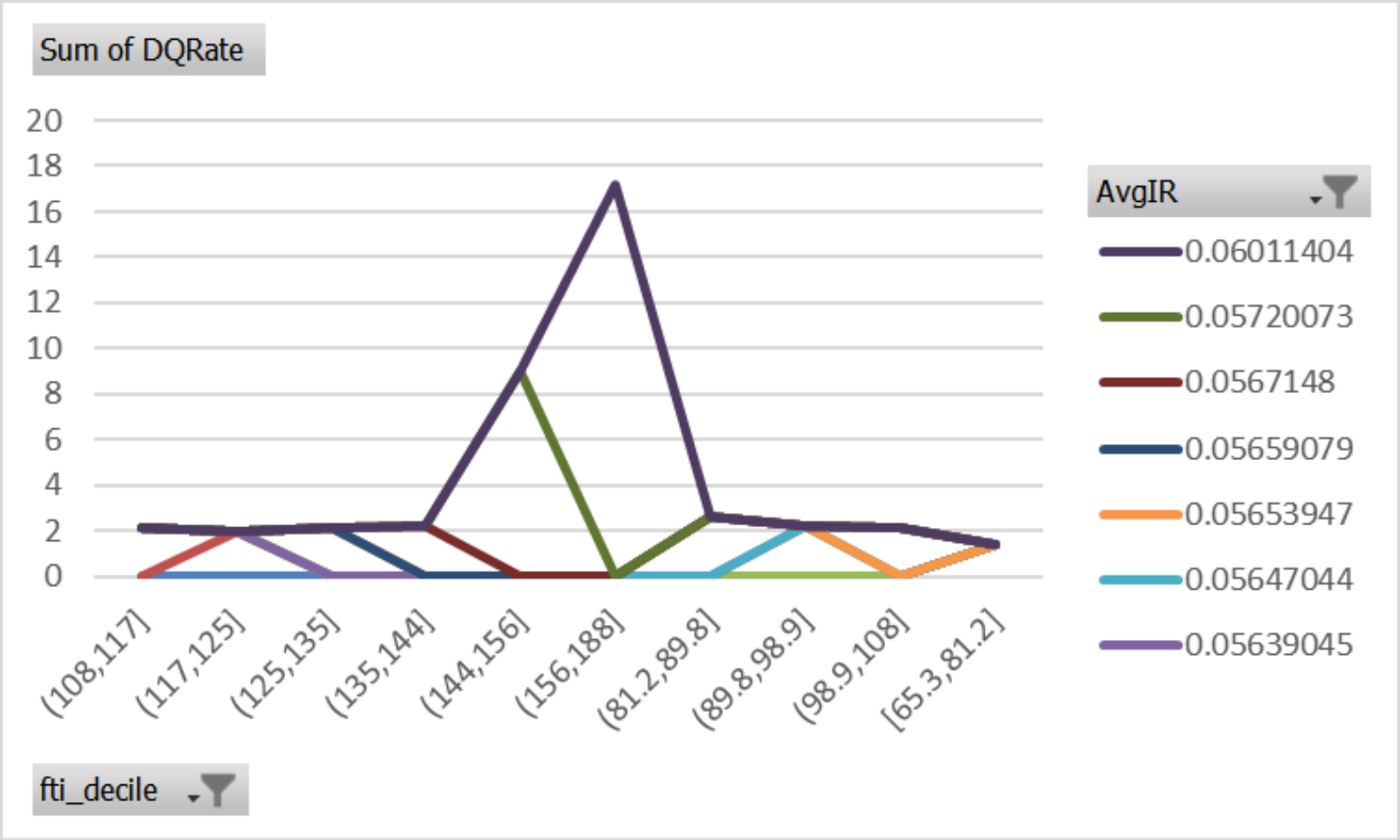
# FUNDED AMOUNT TO INCOME RATIO (FTI)

FTI-Decile (%)	Delinquency	Count	Delinquency rate
(65.3,81.2)	81	5901	1.37
(81.2,89.8)	155	5890	2.63
(89.8,98.9)	129	5874	2.2
(98.9,108)	127	5920	2.15
(108,117)	124	5845	2.12
(117,125)	115	5886	1.95
(125,135)	123	5869	2.1
(135,144)	130	5887	2.21
(144,156)	529	5881	9



The company is taking risk by over lending the fund which they can pay off, there by more chance of Delinquency

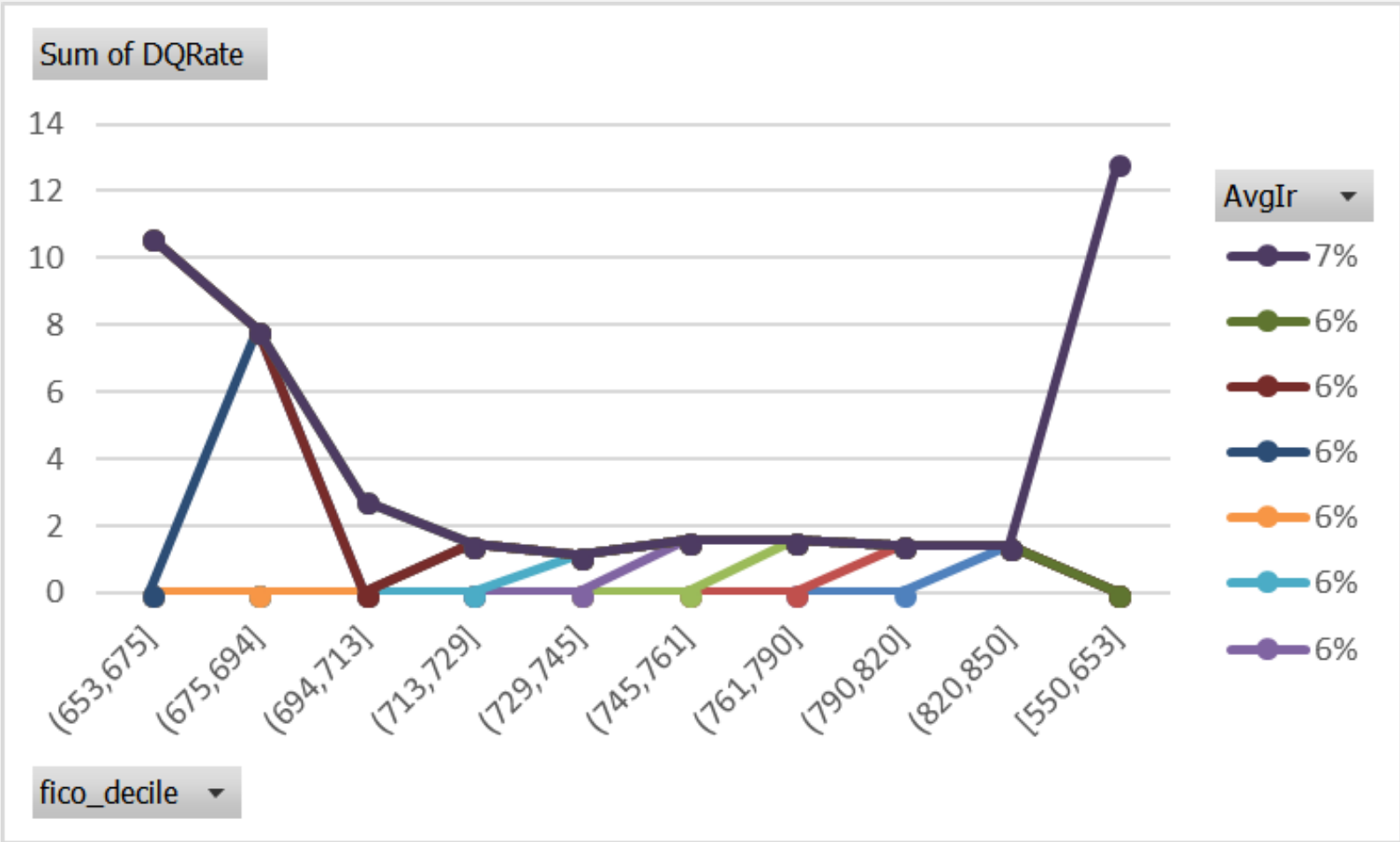
# SOLUTION



Need to stop lending amount over the members repaying capacity

Graph: FTI Decile Vs. % Avg Interest with respect to delinquency rate

# SOLUTION (CONT.)



Should increase the interest rate for members with FICO score ranging from 550 to 694 by atleast two times.

$$\text{DQ rate [FICO(550:694)]} = 2.48 * \{\text{DQ rate [FICO(550:694)]}\}$$

Graph: FICO Decile Vs. % Avg Interest with respect to delinquency rate

# DATA ANALYSIS *IS PERFORMED USING*

- R programming
- MS Excel
- Rapid Miner
- Tableau



The background features a stylized illustration of business-related items. It includes several overlapping documents with various charts and graphs. A laptop is positioned in the center, displaying a pie chart and a line graph. A yellow pencil with a black eraser is placed diagonally across the documents and the laptop. The overall theme is professional and business-oriented.

# THANK YOU

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