# FINANCIAL ANALYSIS WITH POWER BI

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# INTRODUCTION

As a Financial Data Analyst, my role is to provide key insights into credit card usage and financial performance for a banking institution. Leveraging Power BI and advanced DAX functions, I analyze financial metrics such as running totals, moving averages, and growth rates. This project focuses on assessing critical customer behavior indicators, including credit utilization and delinquency risk, to identify patterns that influence customer retention and overall financial health.

# RUNNING TOTAL OF CREDIT CARD TRANSACTIONS

```
RunningTotal_TransAmt =
CALCULATE( SUM(credit_card[Total_Trans_Amt]),
    FILTER(  ALLSELECTED(credit_card[Transaction_Date]),
       credit_card[Transaction_Date] <= MAX(credit_card[Transaction_Date])
))
```

# 4-WEEK MOVING AVERAGE OF CREDITLIMIT PER CLIENT

```
MovingAvg_4Week_CreditLimit =
CALCULATE( AVERAGE(credit_card[creditLimit]),DATESINPERIOD(
 credit_card[Transaction_Date],
 MAX(credit_card[Transaction_Date]), -4, WEEK))
```

# MOM% AND WOW% GROWTH ON TRANSACTION AMOUNT

## Month-over-Month % Growth:

```
MoM_Growth_TransAmt =
DIVIDE(
 [Total_Trans_Amt] - CALCULATE([Total_Trans_Amt],
DATEADD(credit_card[Transaction_Date], -1, MONTH)),
 CALCULATE([Total_Trans_Amt],
DATEADD(credit_card[Transaction_Date], -1, MONTH)))
```

## Week-over-Week % Growth:

```
WoW_Growth_TransAmt =
DIVIDE(
 [Total_Trans_Amt] - CALCULATE([Total_Trans_Amt],
DATEADD(credit_card[Transaction_Date], -1, WEEK)),
 CALCULATE([Total_Trans_Amt],
DATEADD(credit_card[Transaction_Date], -1, WEEK))
)
```

# CUSTOMER ACQUISITION COST (CAC) AS RATIO OF TRANSACTION AMOUNT

```
CAC_Ratio =
DIVIDE(
 SUM(credit_card[Customer_Acquisition_Cost]),
 SUM(credit_card[Total_Trans_Amt]))
```

# YEARLY AVERAGE OF AVG_UTILIZATION_RATIO

```
YearlyAvg_Utilization =
AVERAGEX(
 VALUES(credit_card[Client_ID]),
 AVERAGE(credit_card[avg_utilization_ratio]))
```

# % OF INTEREST_EARNED VS TOTAL_REVOLVING_BAL PER CLIENT

```
Pct_Interest_vs_Revolving =
DIVIDE(
    SUM(credit_card[Interest_Earned]),
    SUM(credit_card[Total_Revolving_Bal]))
```

# TOP 5 CLIENTS BY TOTAL TRANSACTION AMOUNT

```
Top5_Clients_TransAmt =
TOPN( 5,
    SUMMARIZE(credit_card, credit_card[Client_ID],
"TotalTrans", SUM(credit_card[Total_Trans_Amt])),
    [TotalTrans],
    DESC)
```

## CLIENTS WHOSE AVG_UTILIZATION_RATIO EXCEEDS 80%

```
HighUtilizationClients =
FILTER(
    credit_card,
    credit_card[avg_utilization_ratio] > 0.8)
```

## CUSTOMER CHURN INDICATOR (NO TRANSACTION IN LAST 6 MONTHS)

```
Churn_KPI =
IF(
    CALCULATE(
        COUNTROWS(credit_card),
        DATESINPERIOD(credit_card[Transaction_Date],
MAX(credit_card[Transaction_Date]), -6, MONTH) ) = 0, 1, 0)
```

# DELINQUENCY RATE (% OF CLIENTS WITH DELINQUENT_ACC > 0)

```
DelinquencyRate =
DIVIDE( CALCULATE(DISTINCTCOUNT(credit_card[Client_ID]),
credit_card[Delinquent_Acc] > 0),
DISTINCTCOUNT(credit_card[Client_ID]))
```

# Credit Risk Score

To create the credit risk score, we normalize the revolving balance and then weight the average utilization ratio, delinquent accounts, and normalized revolving balance.

```
Normalised_Revolving_Balance =
var min_value = MIN(credit_card[Total_Revolving_Bal])
var max_value = MAX(credit_card[Total_Revolving_Bal])
return DIVIDE(credit_card[Total_Revolving_Bal] - min_value,
max_value - min_value, 0)
```

```
credit_risk_score =
0.5*credit_card[Avg_Utilization_Ratio] +
0.3*credit_card[Delinquent_Acc] +
0.2*credit_card[Normalised_Revolving_Balance]
```

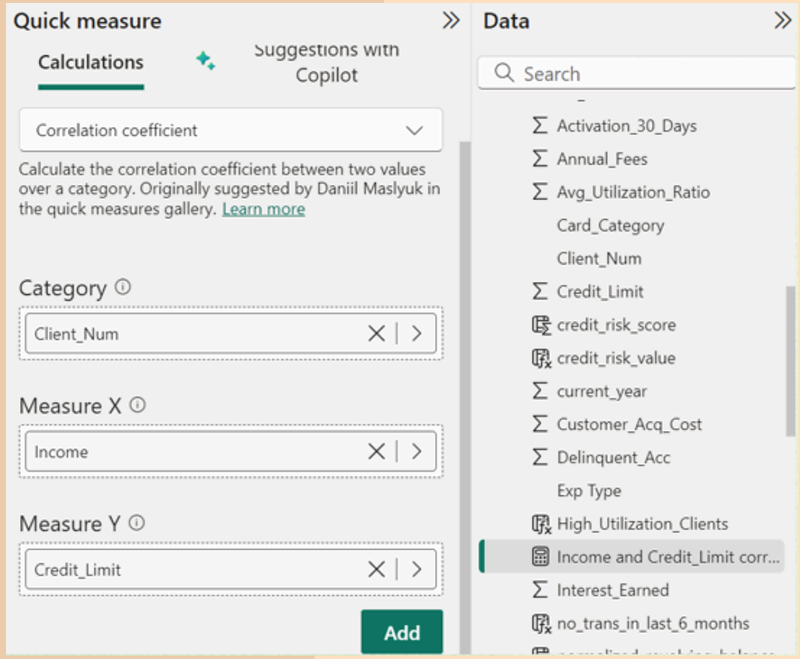
```
credit_risk_value =
SWITCH( TRUE(),
    credit_card[credit_risk_score] <= 0.2, "Low Risk",
    credit_card[credit_risk_score] > 0.2 &&
    credit_card[credit_risk_score] <= 0.5, "Medium Risk",
    credit_card[credit_risk_score] > 0.5, "High Risk")
```

# INCOME VS CREDIT LIMIT CORRELATION

IN THIS ANALYSIS, WE UTILIZED QUICK MEASURES TO CALCULATE THE CORRELATION BETWEEN DIFFERENT METRICS.

CATEGORY: CLIENT_NUM
MEASURE X: INCOME
MEASURE Y: CREDIT_LIMIT

THIS SETUP ALLOWS US TO EVALUATE THE RELATIONSHIP BETWEEN INCOME AND CREDIT_LIMIT FOR EACH CLIENT.



## Avg. Customer Satisfaction Score by Card Category

```
Avg_CustSat_ByCategory =
 AVERAGEX( VALUES(credit_card[Card_Category]),
  CALCULATE(AVERAGE(credit_card[Cust_Satisfaction_Score])))
```

## Loan Approval vs Credit Limit

```
Avg_CreditLimit_Loan =
CALCULATE(
    AVERAGE(credit_card[creditLimit]),
    credit_card[Personal_loan] = "Yes")
```

```
Avg_CreditLimit_NoLoan =
CALCULATE(
 AVERAGE(credit_card[creditLimit]),
 credit_card[Personal_loan] = "No")
```

# HIGH RISK CLIENTS FLAG

```
exceeds_90%_of_creditlimit =
VAR C190 =
   credit_card[Credit_Limit] * 0.9

RETURN
   IF(
      credit_card[Total_Revolving_Bal] > C190,
      TRUE,
      FALSE)
```

# CONCLUSION

This analysis provided a comprehensive view of customer credit card behavior by leveraging Power BI and advanced DAX metrics. Key insights revealed patterns in credit utilization, customer satisfaction, delinquency, and transaction trends. The creation of risk scores and churn indicators enabled the identification of high-risk and inactive customers, which can help businesses mitigate credit exposure and improve client retention strategies.

Additionally, the correlation between income and credit limits, alongside satisfaction levels by card category, offers valuable input for product design and targeted marketing campaigns. By aligning financial metrics such as Customer Acquisition Cost (CAC) with transaction behavior, organizations can better evaluate their return on investment and optimize acquisition strategies.

This project not only demonstrates strong analytical capabilities but also highlights how data-driven decision-making can empower financial institutions to enhance customer segmentation, risk assessment, and overall portfolio performance.

# THANK YOU

The best way to predict the future is to create it. Thank you for being a part of this journey towards insightful financial analysis and strategic growth

-BY BHAVYA BALYAN

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