# Aurora Bank Insights || Client & Transaction Analysis 2022 - 2024

by Justice ofokansi

Analysis was based on the 3 key areas as shown below in the report for the challenge of the month:
1. Understand Customer Profiles: Explore customer demographics, financial health, and behaviours to unlock new opportunities for engagement.
2. Analyze Spending Trends: Uncover patterns and growth opportunities in transaction data.
3. Identify Risks: Spot potential red flags in rising debt, transaction errors, and fraudulent activity.

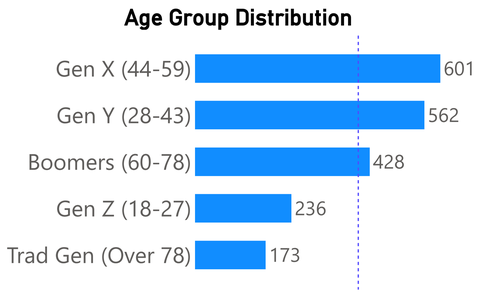
## EXECUTIVE SUMMARY

Risk Level: All | Month: All | Year: All

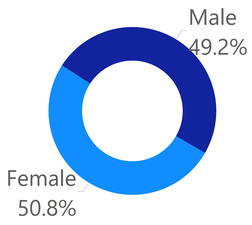
### CLIENT SUMMARY

| 2000 | $45.72K | $63.71K | 138.17 | 709.73 |
|---|---|---|---|---|
| Total Clients | Avg Yearly Income | Avg Total Debt | Average DTI | Avg Credit Score |

**Age Group Distribution**

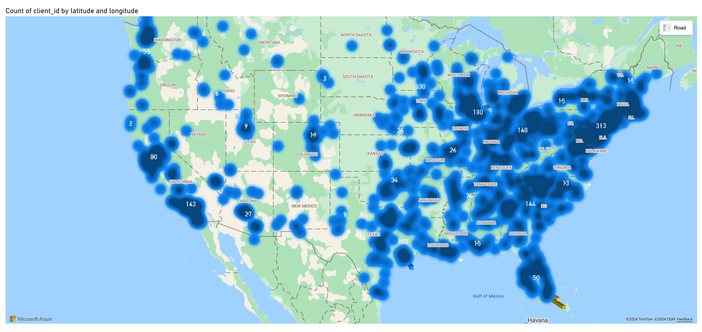



**Gender Distribution**




**Risk Level Summary**

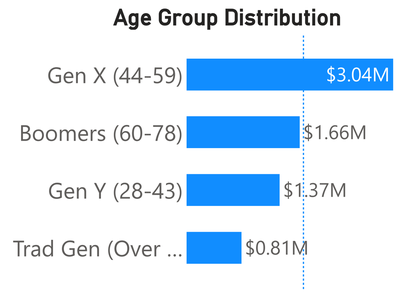
| Risk Level | Avg C.Score | Avg DTI | Count | % | Avg Age . |
|---|---|---|---|---|---|
| Extreme Risk | 613.71 | 182.38 | 382 | | 46.41 |
| High Risk | 722.66 | 167.10 | 1069 | | 46.52 |
| Low Risk | 733.63 | 8.25 | 257 | | 64.01 |
| Medium Risk | 759.31 | 99.45 | 258 | | 55.70 |
| No Risk | 825.35 | 7.61 | 34 | | 62.12 |



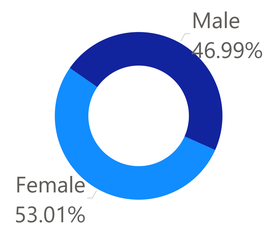

### TRANSACTION SUMMARY

| $6.87M | 303 | $43.72 | 157.224K |
|---|---|---|---|
| Total Amount | Active Clients | Average Amount | No. of Transaction |

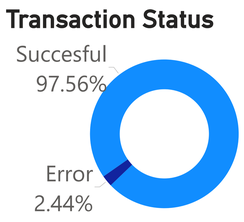
**Age Group Distribution**




**Gender Distribution**

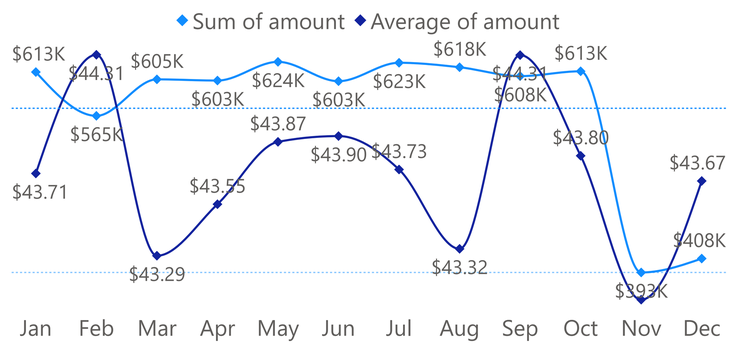



**Transaction Status**




**Transaction Type Distribution**

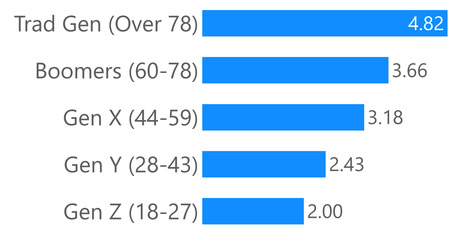
| Transaction Type | Amount | Percent(%) |
|---|---|---|
| Chip Transaction | $4,642,191.87 | 67.53% |
| Swipe Transaction | $1,176,832.55 | 17.12% |
| Online Transaction | $1,055,459.07 | 15.35% |



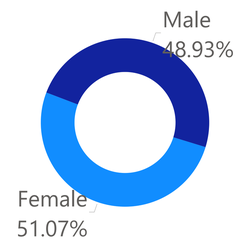

### CARD SUMMARY

| 6146 | 3.07 | $14.35K |
|---|---|---|
| Count of card_id | Average of num_credit_cards | Average Credit Limit |

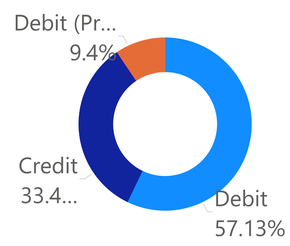
**Age group Distribution**



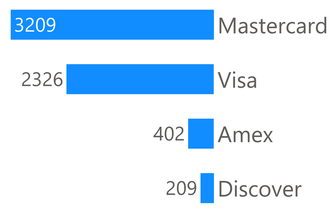

**Gender Distribution**

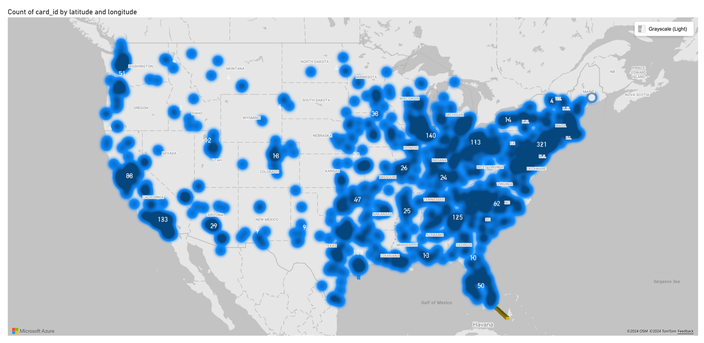



**Card Type**




**Card Brand Distribution**




## CREDIT SCORE AND RISK ANALYSIS

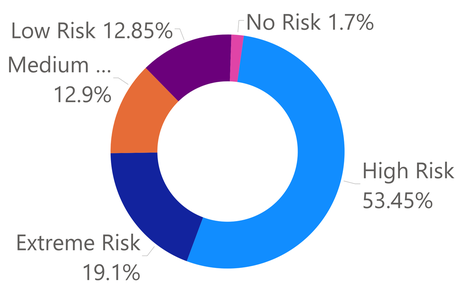
**Debt to Income Ratio (DTI %)**

| DTI_Levels | Avg DTI | Avg Debt | Avg Income |
|---|---|---|---|
| Medium DTI (30-60%) | 44.43 | $21,313.97 | $48,152.10 |
| High DTI (Over 60%) | 172.91 | $79,710.58 | $45,946.16 |
| Low DTI (Below 30%) | 6.75 | $2,810.63 | $43,341.41 |

**Credit Score Level**

| Credit Level | Count | % Rate | Avg C. Score |
|---|---|---|---|
| Good (670-739) | 931 | 46.55% | 704.99 |
| V.Good (740-799) | 474 | 23.70% | 765.96 |
| Fair (580-669) | 348 | 17.40% | 630.08 |
| Excellent (Over 800) | 166 | 8.30% | 825.30 |
| Poor (Below 580) | 81 | 4.05% | 540.59 |

**Risk Level Distribution**




**53.45% of customers** fall under **High Risk**, with a significant portion having a **High Debt-to-Income (DTI) ratio** of **172.91%** and an average debt of **$79,710.58**.

**Individual Client Risk level**

| client_id | Age | Total Debt | Yearly Income | DTI (%) | DTI_Levels | C.Score | C.Score Level | Risk Level |
|---|---|---|---|---|---|---|---|---|
| 98 | 85 | $1,639 | $16,646 | 9.85 | Low DTI (Below 30%) | 590 | Fair (580-669) | Medium Risk |
| 96 | 74 | $4,344 | $99,825 | 4.35 | Low DTI (Below 30%) | 685 | Good (670-739) | Low Risk |
| 94 | 63 | $95,755 | $36,760 | 260.49 | High DTI (Over 60%) | 593 | Fair (580-669) | Extreme Risk |
| 92 | 81 | $5,132 | $31,145 | 16.48 | Low DTI (Below 30%) | 689 | Good (670-739) | Low Risk |
| 90 | 68 | $22,192 | $12,796 | 173.43 | High DTI (Over 60%) | 644 | Fair (580-669) | Extreme Risk |
| 89 | 40 | $23,394 | $30,217 | 77.42 | High DTI (Over 60%) | 705 | Good (670-739) | High Risk |
| 87 | 63 | $2,870 | $24,155 | 11.88 | Low DTI (Below 30%) | 802 | Excellent (Over 800) | No Risk |
| 86 | 29 | $25,138 | $23,212 | 108.30 | High DTI (Over 60%) | 799 | V.Good (740-799) | High Risk |
| 84 | 52 | $41,455 | $25,748 | 161.00 | High DTI (Over 60%) | 738 | Good (670-739) | High Risk |
| 81 | 71 | $60,397 | $35,560 | 169.85 | High DTI (Over 60%) | 723 | Good (670-739) | High Risk |

| Age Group | Avg Debt | Avg Income | Avg DTI (%) | Bar | Avg C.Score | % Rate |
|---|---|---|---|---|---|---|
| Gen Z (18-27) | $75,028.31 | $47,186.25 | 161.25 | | 711.58 | 100.26% |
| Gen Y (28-43) | $75,458.13 | $48,001.52 | 156.74 | | 708.87 | 99.88% |
| Gen X (44-59) | $70,222.46 | $46,225.44 | 154.49 | | 708.76 | 99.86% |
| Boomers (60-78) | $55,702.68 | $45,180.15 | 125.15 | | 712.18 | 100.34% |
| Trad Gen (Over 78) | $7,287.80 | $35,840.24 | 21.86 | | 707.36 | 99.67% |

DTI is more likely to start decreasing by about **40%** when clients are above 60 years than otherwise on average.

**Corelation Between Age & Credit Score Level**

| Credit Level | Boomers (60-78) | Gen X (44-59) | Gen Y (28-43) | Gen Z (18-27) | Trad Gen (Over 78) |
|---|---|---|---|---|---|
| V.Good (740-799) | 109 | 138 | 128 | 59 | 40 |
| Poor (Below 580) | 17 | 21 | 22 | 11 | 10 |
| Good (670-739) | 197 | 283 | 258 | 110 | 83 |
| Fair (580-669) | 69 | 115 | 102 | 36 | 26 |
| Excellent (Over 800) | 36 | 44 | 52 | 20 | 14 |

**Corelation Between Age & Risk Level**

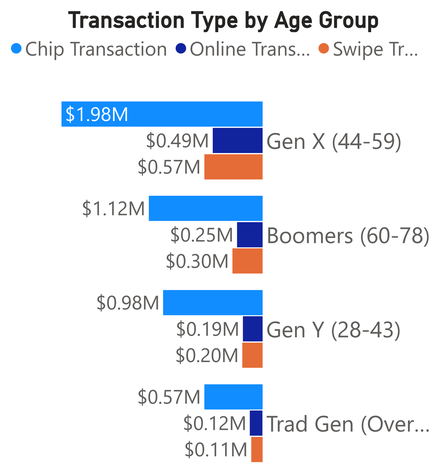
| Age Group | Extreme Risk | High Risk | Low Risk | Medium Risk | No Risk |
|---|---|---|---|---|---|
| Boomers (60-78) | 66 | 227 | 49 | 82 | 4 |
| Gen X (44-59) | 136 | 344 | 52 | 60 | 9 |
| Gen Y (28-43) | 124 | 331 | 45 | 55 | 7 |
| Gen Z (18-27) | 47 | 146 | 17 | 24 | 2 |
| Trad Gen (Over 78) | 9 | 21 | 94 | 37 | 12 |

## TRANSACTION ANALYSIS

**Transaction Description by Age**

| Age Group | Sum | Average | Count | Maximum |
|---|---|---|---|---|
| Boomers (60-78) | $1,663,408.71 | $43.82 | 37956 | $1,911.54 |
| Gen X (44-59) | $3,037,369.77 | $42.00 | 72318 | $1,852.46 |
| Gen Y (28-43) | $1,368,212.93 | $48.35 | 28299 | $1,508.20 |
| Trad Gen (Over 78) | $805,492.08 | $43.19 | 18651 | $1,783.38 |

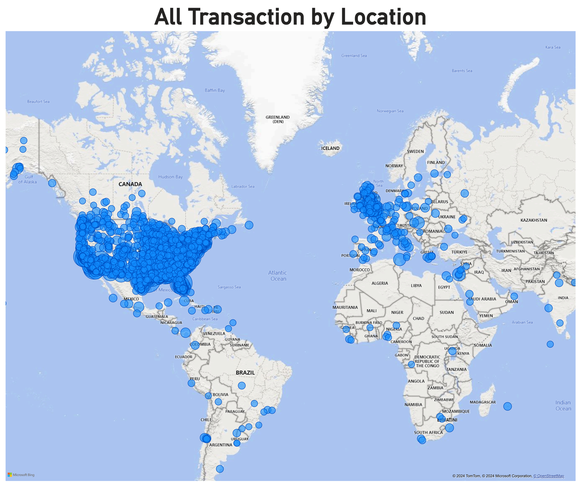
**Transaction Type by Age Group**



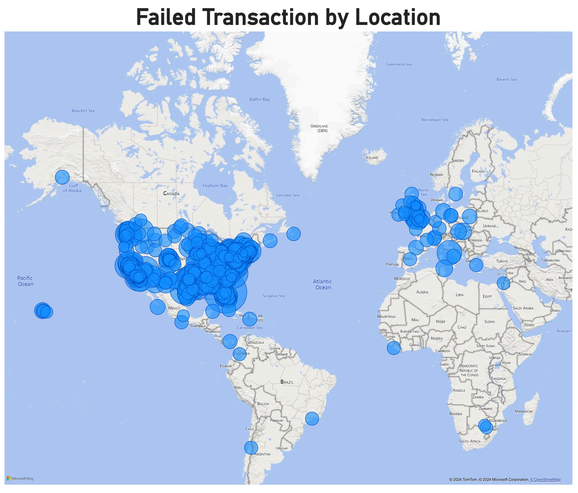

**Transaction Type Description**

| Transaction Type | Sum | Average | Count | Maximum |
|---|---|---|---|---|
| Online Transaction | $1,055,459.07 | $59.35 | 17783 | $1,567.69 |
| Swipe Transaction | $1,176,832.55 | $43.06 | 27327 | $1,829.35 |
| Chip Transaction | $4,642,191.87 | $41.41 | 112114 | $1,911.54 |

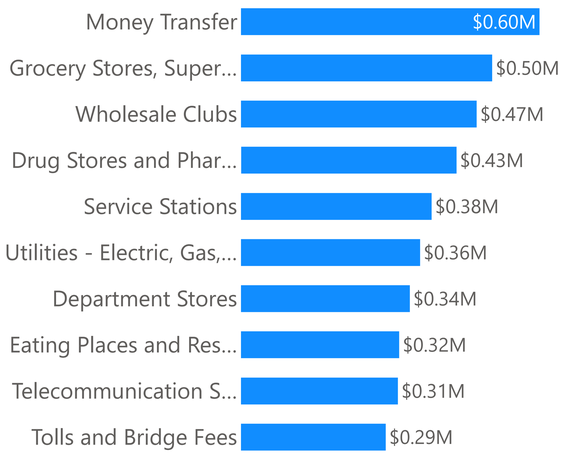
**All Transaction by Location**



**Failed Transaction by Location**



**Top 10 Transaction Distribution by Merchant Category**




| $22,688.06 | 519 |
|---|---|
| Average Amount by Client | Client Annual Frequency |

| client_id | Sum | Count | Fraud Detection |
|---|---|---|---|
| 98 | $43,486.01 | 988 | Potential Fraud |
| 96 | $113,336.42 | 1850 | Potential Fraud |
| 94 | $25,562.54 | 688 | Potential Fraud |
| 92 | $18,215.71 | 630 | No Fraud |
| 90 | $19,293.62 | 402 | No Fraud |
| 89 | $21,140.06 | 650 | No Fraud |
| 87 | $14,453.51 | 587 | No Fraud |
| 86 | $14,993.79 | 492 | No Fraud |
| 84 | $19,758.15 | 600 | No Fraud |

**Corelation Between Error Type and Transaction Type**

| Error Grouping | Chip Transaction | Online Transaction | Swipe Transaction |
|---|---|---|---|
| Incorrect Entry | $11,438.42 | $13,281.65 | $4,352.43 |
| Insufficient Balance | $89,057.53 | $10,471.58 | $23,964.54 |
| Technical Glitch | $10,839.42 | $2,600.58 | $1,772.79 |

**Corelation Between Error Type and Age Group**

| Error Grouping | Boomers (60-78) | Gen X (44-59) | Gen Y (28-43) | Trad Gen (Over 78) |
|---|---|---|---|---|
| Incorrect Entry | 155 | 305 | 123 | 68 |
| Insufficient Balance | 411 | 746 | 355 | 251 |
| Technical Glitch | 86 | 155 | 48 | 35 |