

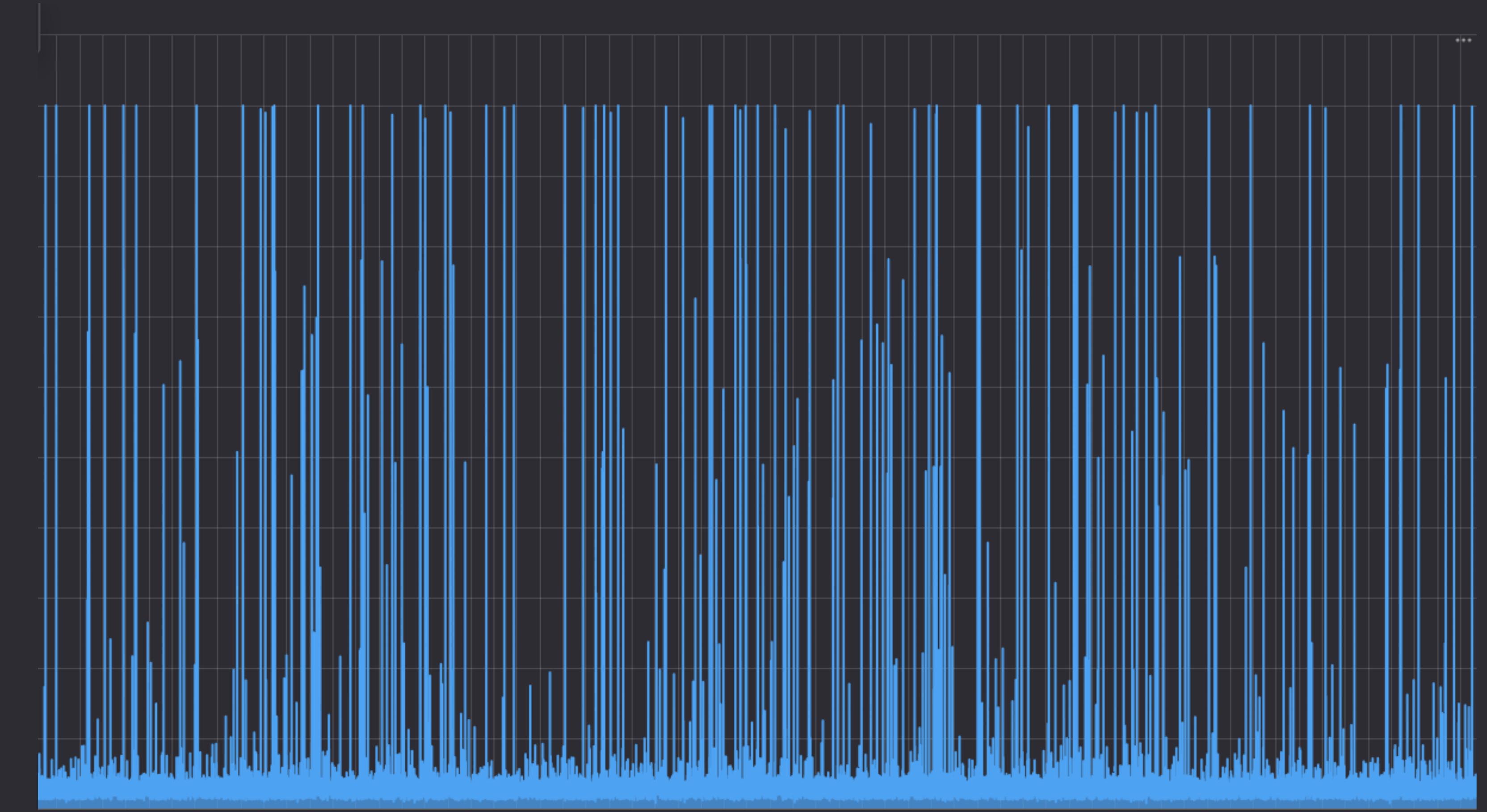


BBD Data Science Level Up

Data Analysis

We used a ML model to analyse the transactions from BBD Bank and identify which ones were likely to be fraudulent

x: Transaction ID, y: likelihood of Fraud



Data Analysis

x: Transaction Status, y: likelihood of Fraud

What we'd like to see:

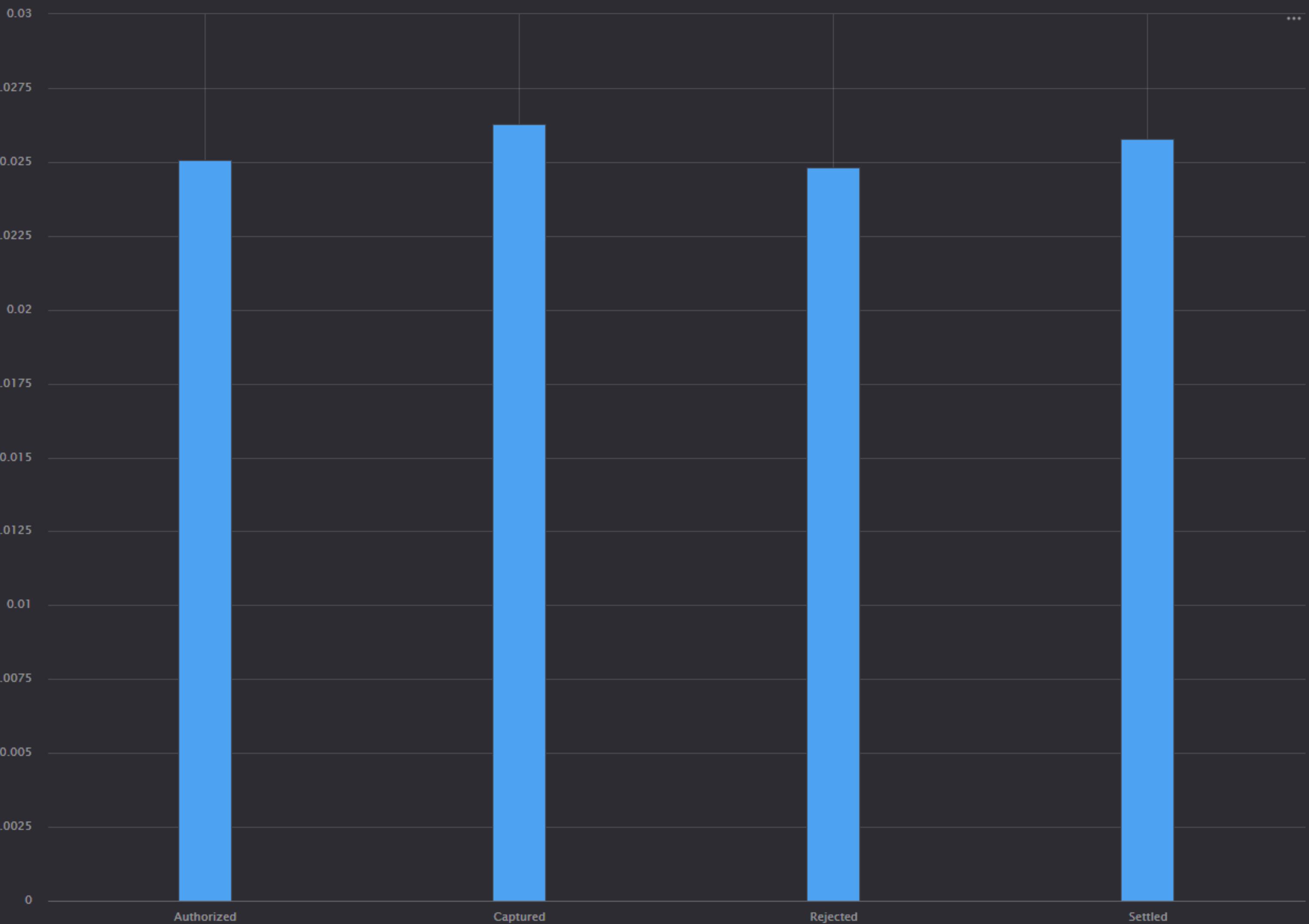
A massive spike on “Rejected” indicating that we are rejecting most fraudulent transactions

What we're seeing:

A fairly even distribution of fraud across the statuses

Conclusion:

BBD Bank is currently doing a terrible job at identifying and rejecting fraudulent transactions



Data Analysis

x: Rejection reason, y: likelihood of Fraud

What we'd like to see:

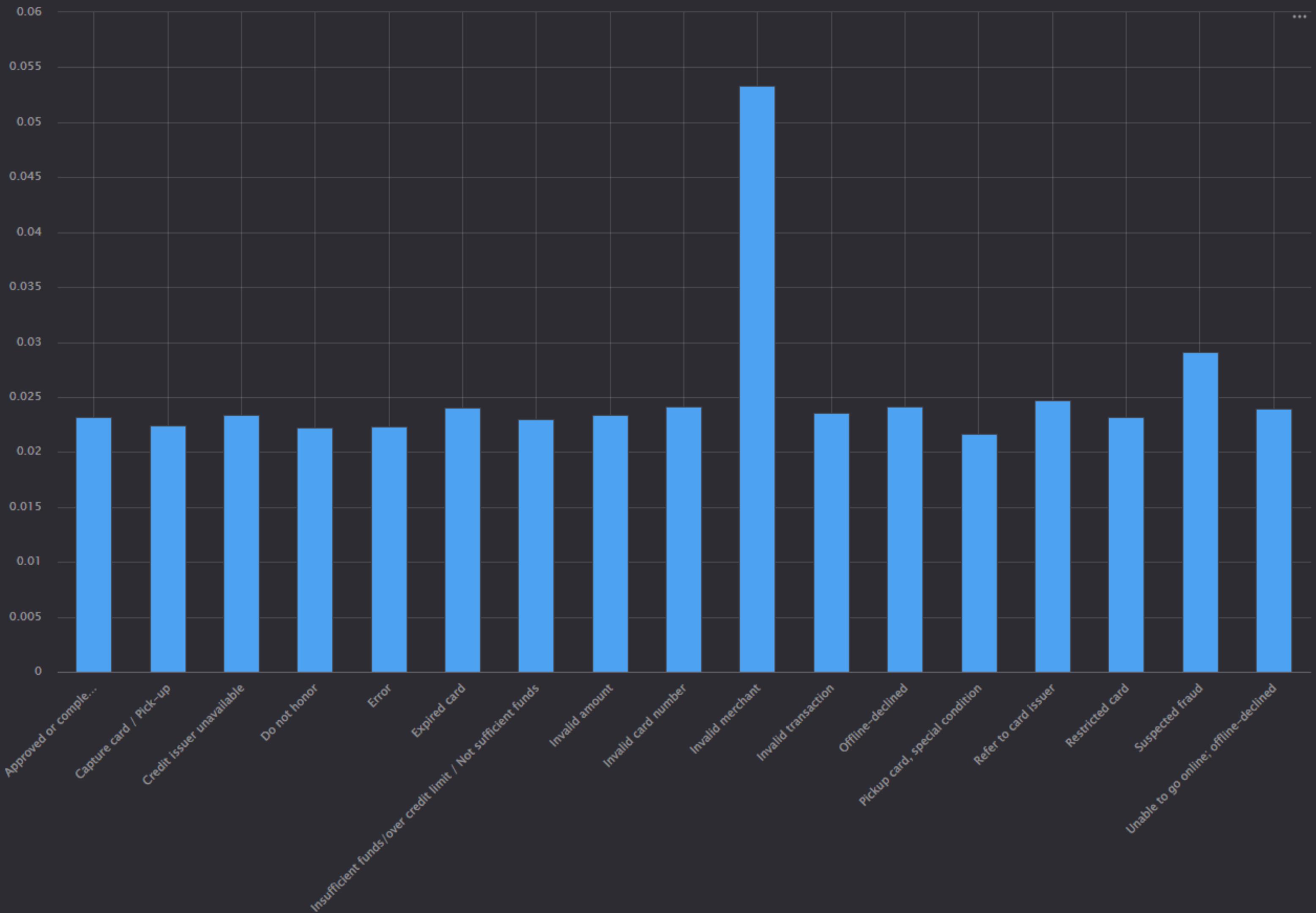
A massive spike on “Suspected Fraud” indicating that, of the transactions that do get rejected, we are correctly flagging attempts at fraud

What we're seeing:

A fairly even distribution, with a spike at “Invalid Merchant”

Conclusion:

A lot of fraud attempts are getting incorrectly flagged as “Invalid Merchant”. Fraudsters may be deliberately trying to transact with invalid merchants.

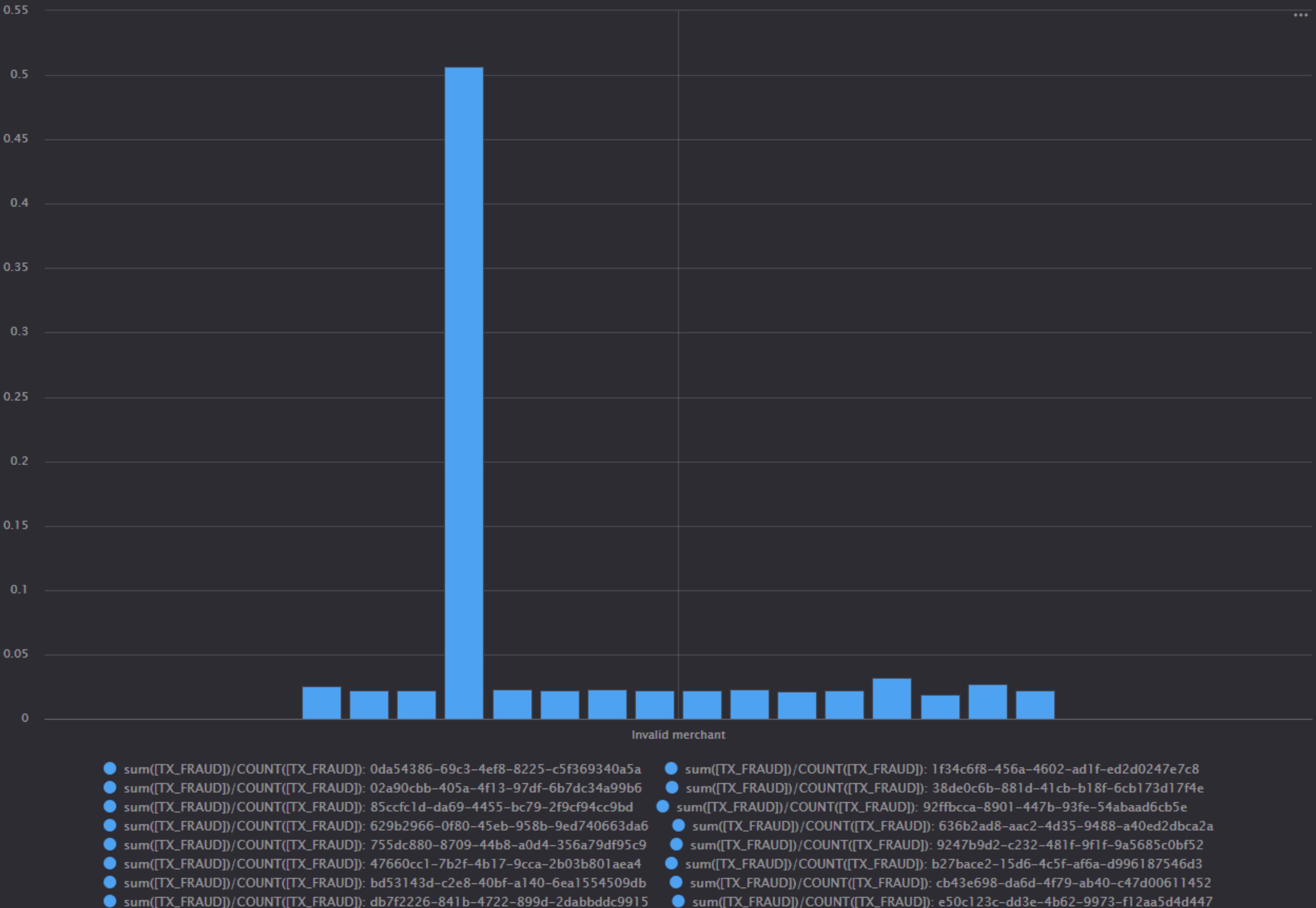


Data Analysis

There is a specific merchant responsible for a lot of these false flags. Which seems suspicious and probably warrants further investigation.

x: Rejection reason; Merchant ID, y: likelihood of Fraud

Filter: Rejection Reason: Invalid Merchant



Data Analysis

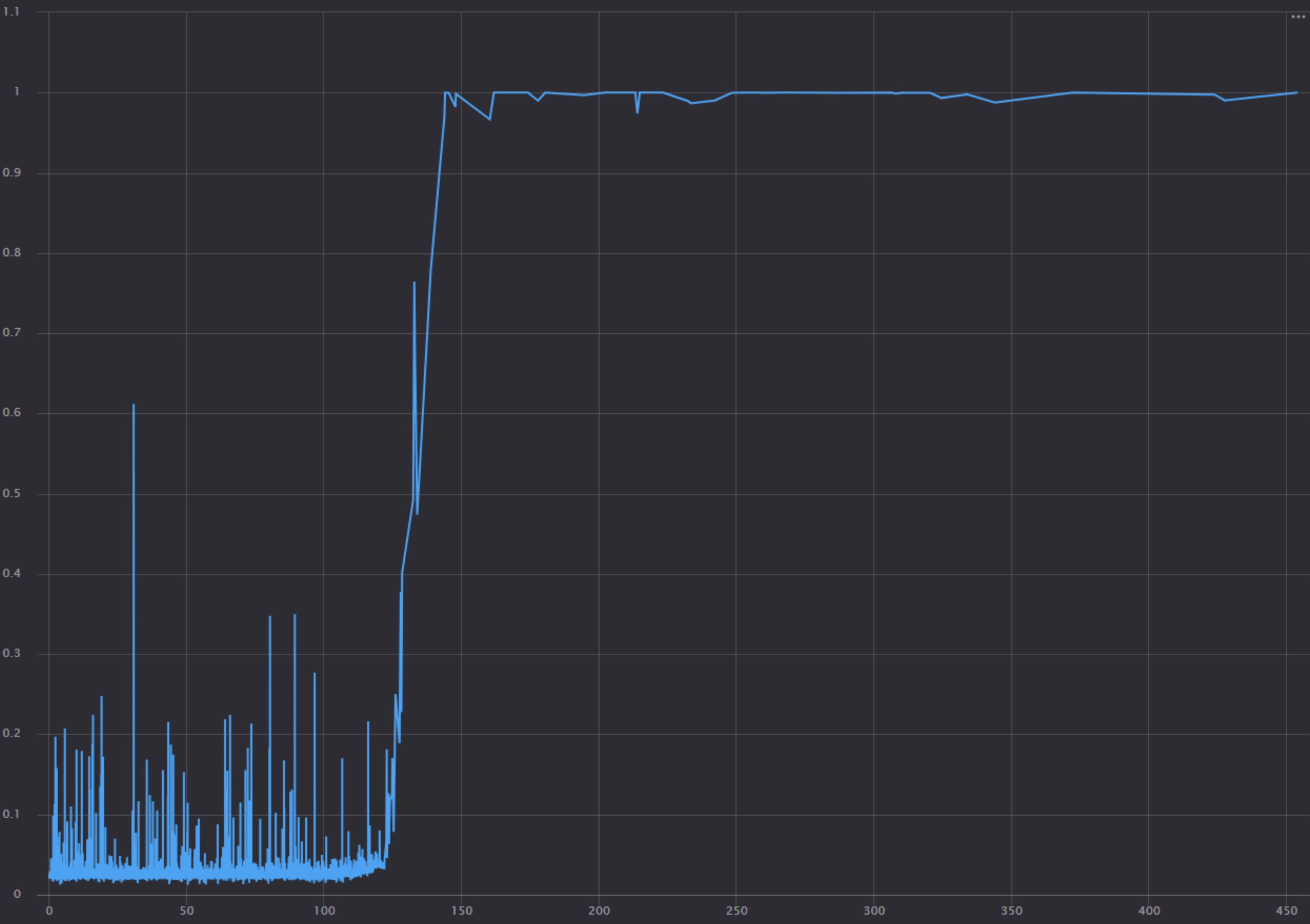
x: Transaction Amount, y: Likelihood of Fraud

What we're seeing:

Erratic spikes in the 0-125 range followed by a rapid climb

Conclusion:

Transactions are reliably fraudulent at higher amounts, although there are significant attempts in the 0-125 range



Data Analysis

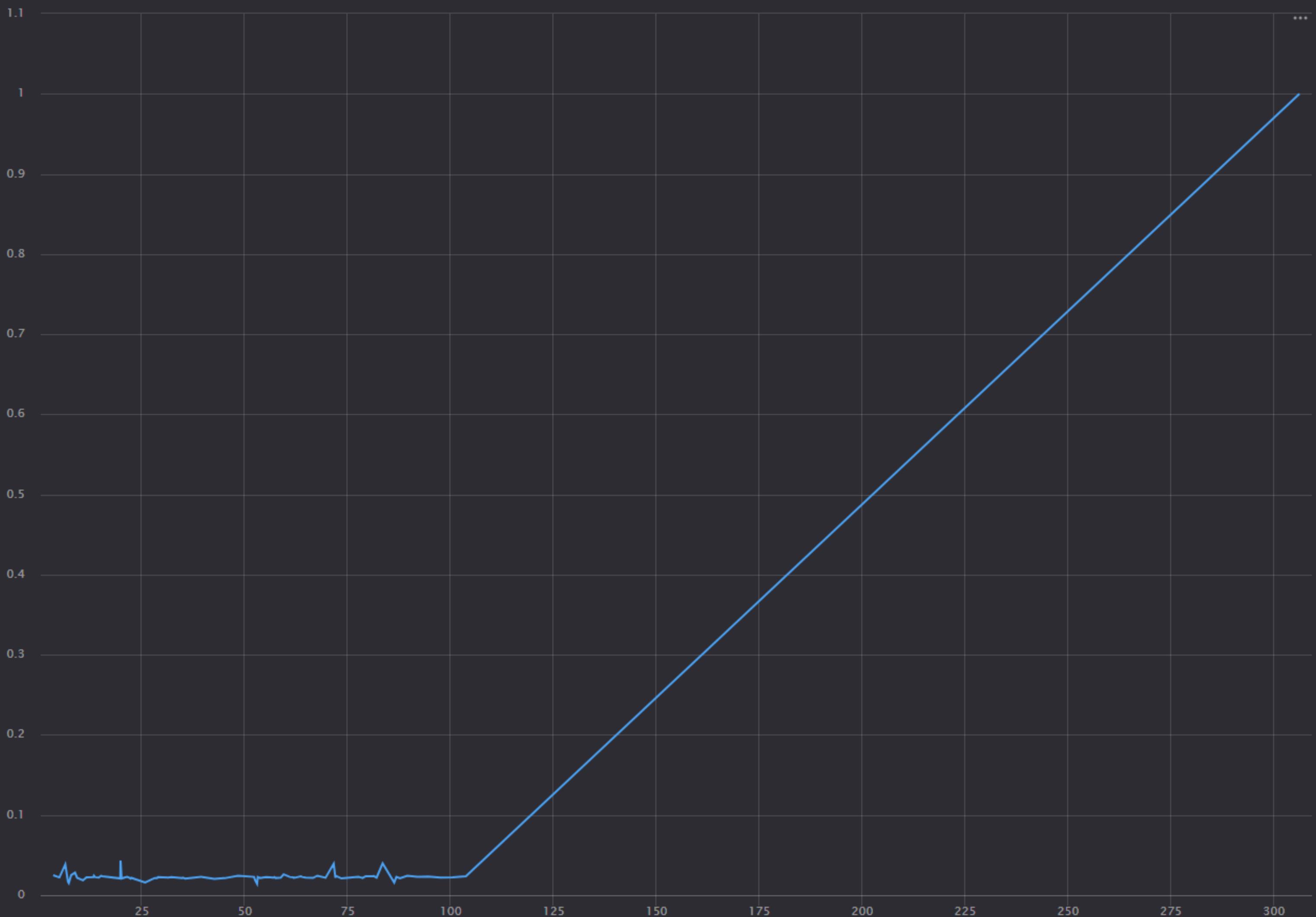
x: Transaction Amount, y: Likelihood of Fraud,
Filter: Rejected due to suspected fraud

What we'd like to see:

The same behaviour as the previous graph, indicating that BBD Bank is reliably identifying fraud

What we're seeing:

A flat line with very mild variations between 0-100, followed by a steady rise

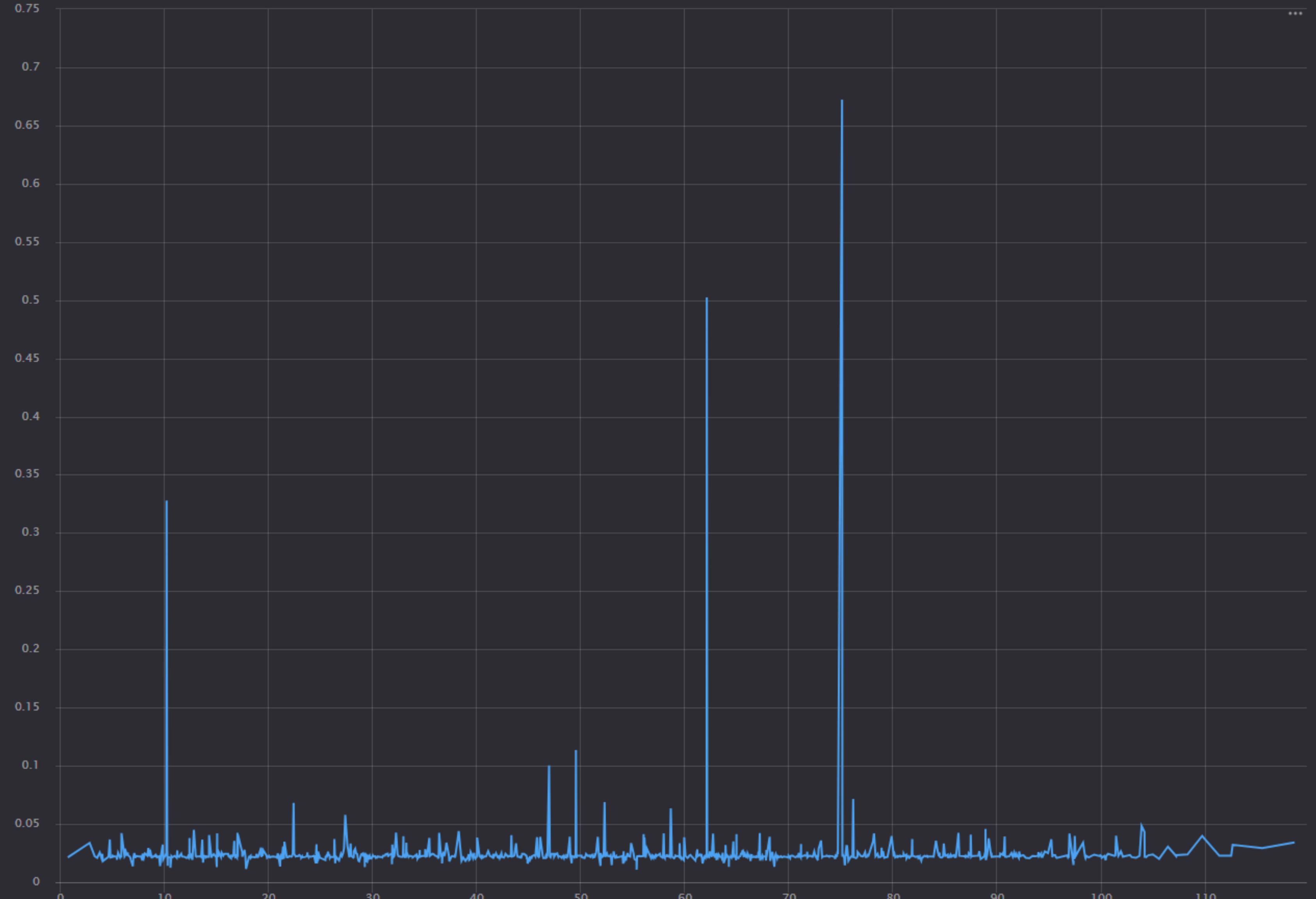


Data Analysis

x: Transaction Amount, y: Likelihood of Fraud,
Filter: Transaction Approved

Conclusion:

BBD Bank gets better at identifying and blocking fraudulent transactions with higher transaction amounts, but consistently overlooks fraud with lower transaction amounts

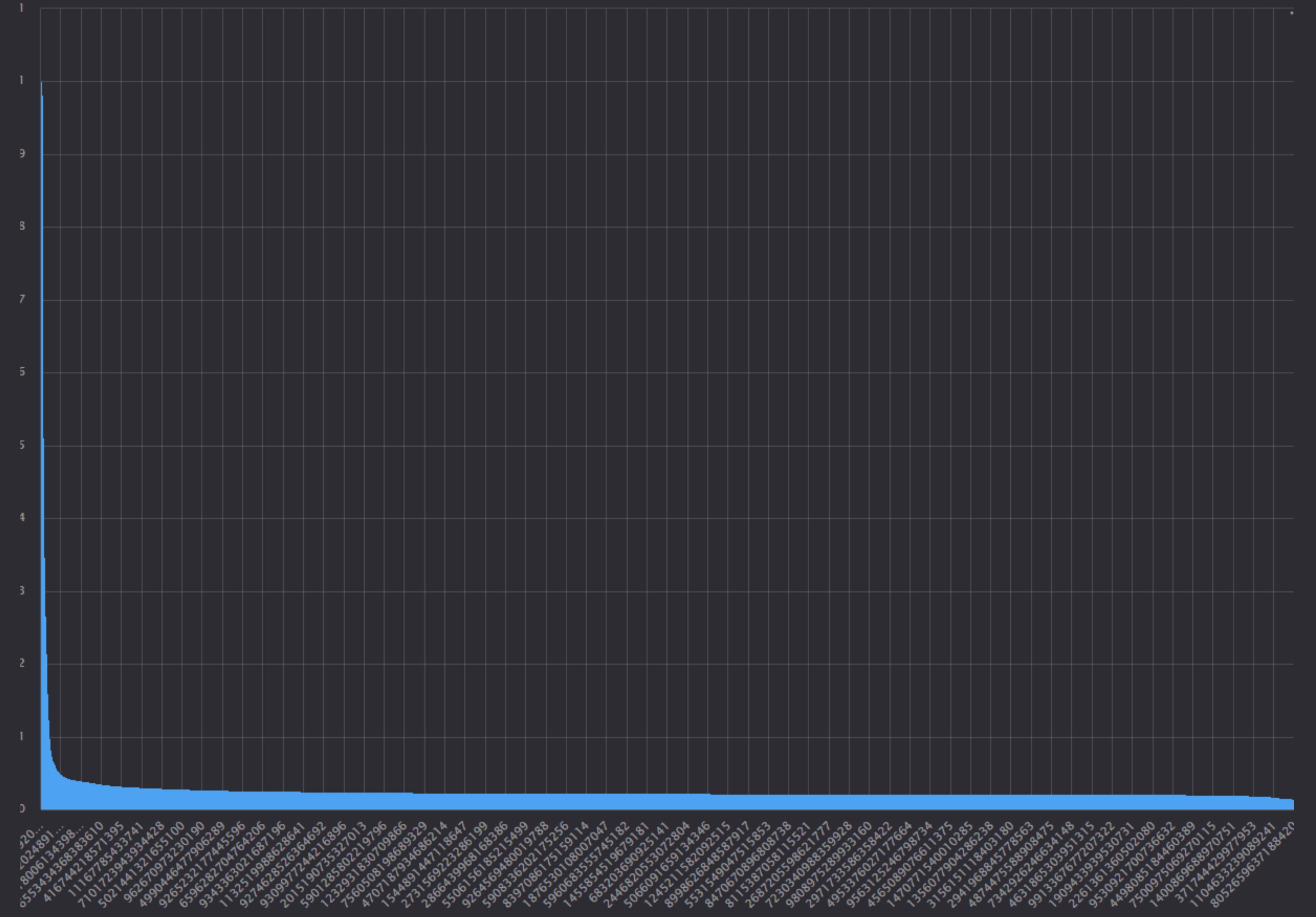


Data Analysis

x: Customer ID, y: Likelihood of Fraud

What we're seeing:

A handful of customers have a very high probability of committing fraud, some approaching a 100% chance per transaction, but the majority has a less than 10% chance



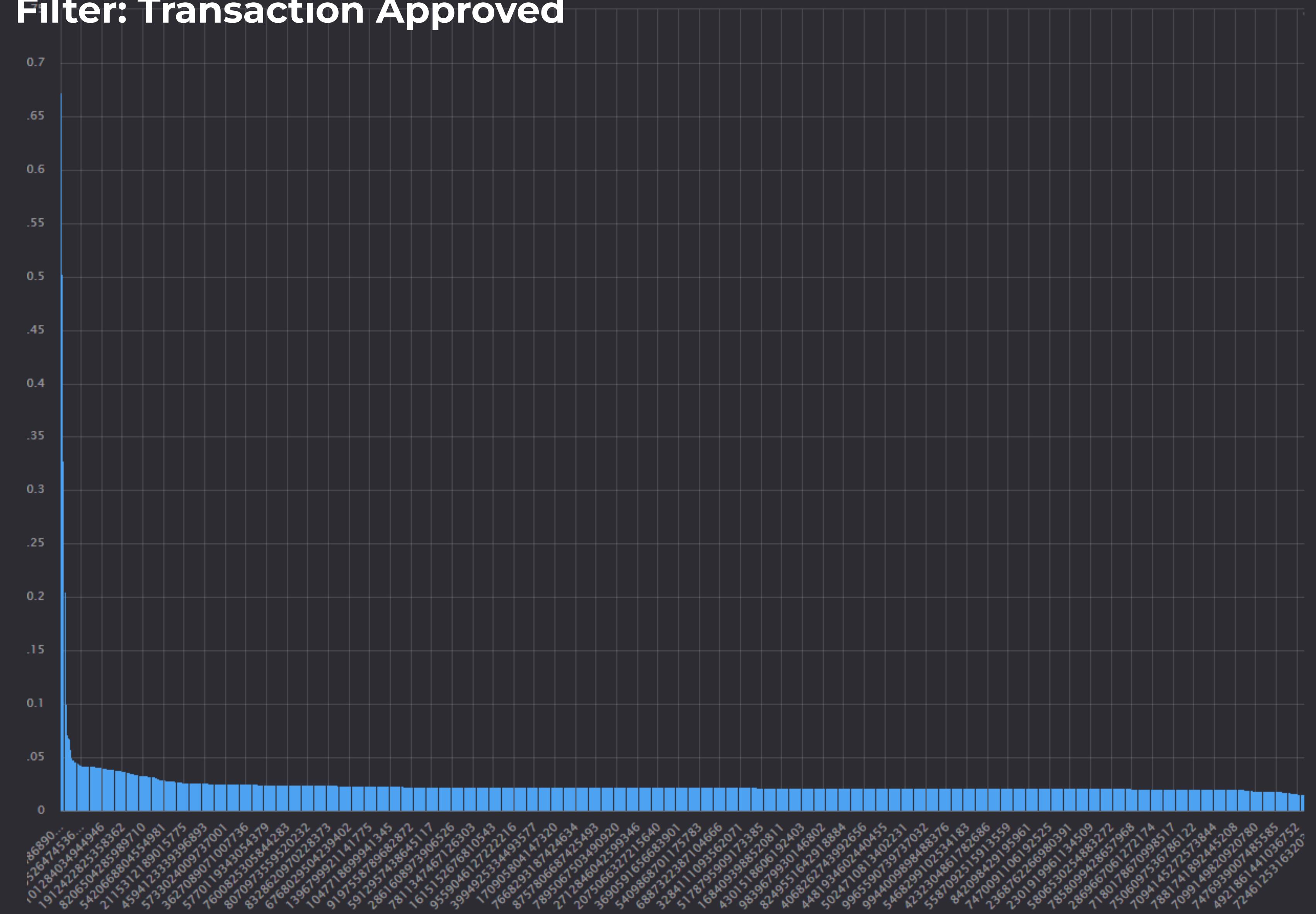
Data Analysis

What we're seeing:

When we filter it to just look at deals BBD Bank has approved, the pattern looks the same, some of the more egregious fraudsters have been eliminated

x: Customer ID, y: Likelihood of Fraud

Filter: Transaction Approved



Data Analysis

x: Customer ID, y: Likelihood of Fraud

Filter: Transaction Approved; Average TX_Fraud>0.2

What we're seeing:

When we filter it to just look at deals BBD Bank has approved, the pattern looks the same, though a lot of the more egregious fraudsters have been eliminated

Conclusion:

The majority of BBD Bank's users are not fraudsters, there are only 4 users with an average TX_Fraud above 20% whose transactions are getting approved.

Recommendation would be placing these users under extra scrutiny

