**Claims vs. Expected Losses Report**

**Introduction**

This report analyzes the Claim Amount and Expected Loss Amount for various regions to evaluate the accuracy of risk estimates. By comparing actual claims to forecasted losses, I can identify patterns, assess potential miscalculations in risk modeling, and recommend adjustments for future forecasting.

**Key Findings**

1. **Regions with the Highest Claim to Expected Loss Ratios**

The Claim to Expected Loss Ratio is calculated by dividing the Claim Amount by the Expected Loss Amount for each region. A ratio higher than 1 indicates that claims were higher than expected, suggesting potential underestimation of risk or unexpected external factors. The regions with the highest ratios are:

* **C22**: Ratio = 1.27
* **C21**: Ratio = 1.27
* **C8**: Ratio = 1.26

Every region reported actual claims higher than the expected losses, which suggests that the loss estimation model may underestimate total exposure. This could be due to emerging risks or unexpected claim trends, inadequate pricing or reserving assumptions, or external factors influencing claim severity or frequency.

1. **General Observations**

Most regions have a Claim to Expected Loss Ratio close to 1.25, showing that actual claims are generally higher than expected losses. C8 has the highest claim amount, totaling around $256 million, which could point to either an unexpected surge in claims or an underestimation in the loss forecast for that region. C22 had the highest claim-to-expected-loss ratio, indicating a need for further investigation into risk drivers in that region.

**Total Claims and Expected Losses**

* **Total Claim Amount**: $1,097,296,906
* **Total Expected Loss Amount**: $876,729,754.10

This confirms a consistent underestimation of risk, suggesting the need for model refinement to improve future loss projections.

**Potential Insights & Recommendations**

* **Refining Risk Models**

The consistent underestimation of claims indicates that loss projection methods may need to incorporate more dynamic variables, such as inflation trends, claim severity adjustments, or external risk factors. Adjust loss development factors to better capture incurred but not reported (IBNR) claims and unexpected claim severity.

* **Underwriting & Pricing Adjustments**

Given that actual losses exceeded expectations across the board, rate adequacy reviews should be conducted to determine if pricing adjustments are needed. High-risk regions (C22, C21, C8) may require more stringent underwriting criteria or premium recalibrations to account for increased exposure.

* **Data Modeling & Forecasting Improvements**

Conduct a sensitivity analysis on key model inputs to test how changes in assumptions impact loss projections. Explore predictive modeling techniques to better forecast claim trends and refine exposure rating models.

**Visual Aids**

* **Bar Chart**: Claim to Expected Loss Ratios

I created a bar chart to visualize the Claim to Expected Loss Ratios for each region. This chart helps highlight where claims are much higher or lower than expected.

A screenshot of a computer

Description automatically generated

**Conclusion**

This analysis reveals a consistent pattern of higher-than-expected claims, indicating that existing risk models may need refinement. The most significant underestimations occurred in C22, C21, and C8, which may require pricing, underwriting, or reserving adjustments. Moving forward, enhancements in data modeling, risk assessment, and claim forecasting will be key to improving future accuracy.