XCLAIM Analytics Engineer Challenge Executive Summary – Marini Lopci



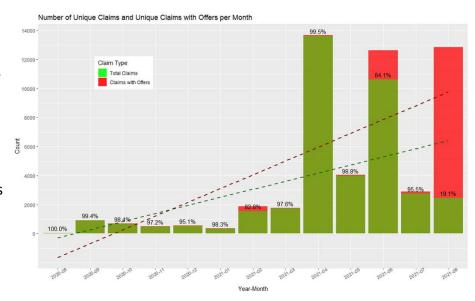
Number of Buyers with Offer per Month



- The green volume represents monthly number of unique buyers with offers per month, and red dashed line indicates general trend over time.
- Number of unique buyers¹ with initial offers generally increases over time.

Number of Claims with Offer per Month²

- August 2020 had a total of 27 claims (each with at least one offer).
- August 2021 had 12,845 unique claims, with 2,453 receiving at least one offer. The low offer rate is likely artificial due to the data cut-off date of 08/11.
- Both the volume of claims and the volume of claims with offers increase month-over-month. It is likely that the lower slope of the trendline for claims with offers is due to the data cut-off date.



Percent of Total Negotiations with Seller Actions:

$$Percent_{Seller\ Actions} = \frac{Negotiations\ with\ Actions^2}{Total\ Negotiations^3} = \frac{981}{32,409} = 3.02\%$$

¹Unique Buyers are determined on a month-by-month basis utilizing the negotiations data, where an offer is classified as the first offer made during an individual negotiation. Note: this figure does not include observations for non-initial offers.

²Offer rate is calculated as the number of claims with offers divided by the number of total claims month-by-month.

³Negotiations with Actions are negotiation entries where the action has a value of "offer", "accept", or "decline," and where the legal entity on the entry is not the original buyer for that negotiation.

⁴Total Negotiations is a count of the total distinct negotiation IDs available in the data.

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Seller Conversion and Number of Buyers with Offers

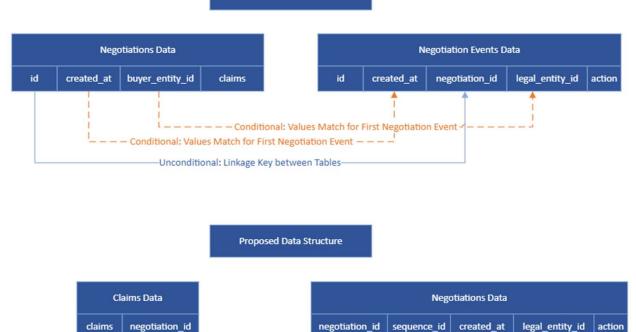
Regression Results

	(1)	(2)	(3)	
More than one Buye	er? 0.700 (0.668)			
Number of Buyers		0.444 (0.609)		
2 Buyers			0.731 (0.675)	
3 Buyers			0.533 (0.630)	
4 Buyers			1.149 (0.759)	
5 Buyers			-8.220*** (0.0003)	
Constant	-3.346*** (0.034	-3.346*** (0.034)-3.758*** (0.023) -3.346*** (0.034)		
Observations	21,791	21,791	21,791	
Log Likelihood	-3,553.531	-3,561.160	-3,552.437	
Akaike Inf. Crit.	7,111.061	7,126.320	7,114.874	
Note:	p<0.1; p<0.05; p<0.01			

- Seller Conversion is determined as any "offer", "accept", or "decline" actions made by the non-buyer legal entity.
- Each column represents a different regression methodology: (1) utilizes a binary predictor (akin to a Chisquare test); (2) utilizes a continuous predictor; and (3) utilizes a categorical predictor (with 1 Buyer as the reference).
- Coefficient estimates represent log-odds, values within parentheses represent probabilities (i.e., the probability of seller conversion increases by 67.5% when two buyers make an offer compared to a single buyer).

Normalizing Existing Data Structure:

Current Data Structure



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-Unconditional: Linkage Key between Tables-