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Two Step Methodology

1. Estimate Money Laundering (ML) risk scores based on a set of 13 indicators
2. Add context and validate from secondary sources and flag as appropriate



ML Risk Scores Indicators List

- 13 Indicators evaluated out of more than 25 identified
 - Based on Unger et al. (2010) and FINTRAC (2016).
 - Limited data availability
- JLR Inc. (recently acquired by Equifax) provided Property Characteristics Data (PCD).
- All Residential Real Estate Transactions from Québec since 2000 (1.6 million)

ML Risk Scores Indicators List

Property Characteristics

1. The property is traded multiple times
2. The property in question is traded at least twice within 1 year

Transaction Financing

1. The mortgage is provided by a natural person
2. The mortgage provider is from abroad
3. No Mortgage: property is purchased in cash



ML Risk Scores Indicators List

Transaction Details

1. The purchase price is considerably higher / lower compared to average price in the neighborhood in the same year
2. The purchase price is significantly higher / lower compared to assessed or (hedonic) estimated value, whichever is higher
3. The purchase price is significantly higher / lower compared to previous price
4. The buyer provided incomplete address in transaction record



ML Risk Scores Indicators List

Buyer / Seller Characteristics

1. The buyer is from abroad
2. The buyer is a corporation
3. The buyer owns large number of property
4. The average value of the properties owned by the buyer is significantly high



Measurement and Aggregation

- Each transaction gets a score for each indicator
 - Seven indicators are Yes / No (i.e., 1 or 0 numerically).
 - Six indicators are continuous (probabilistic, between 0 and 1).
- All the indicators are then summed for each transaction
- 13 indicators – Highest possible score is 13.



Descriptive Statistics

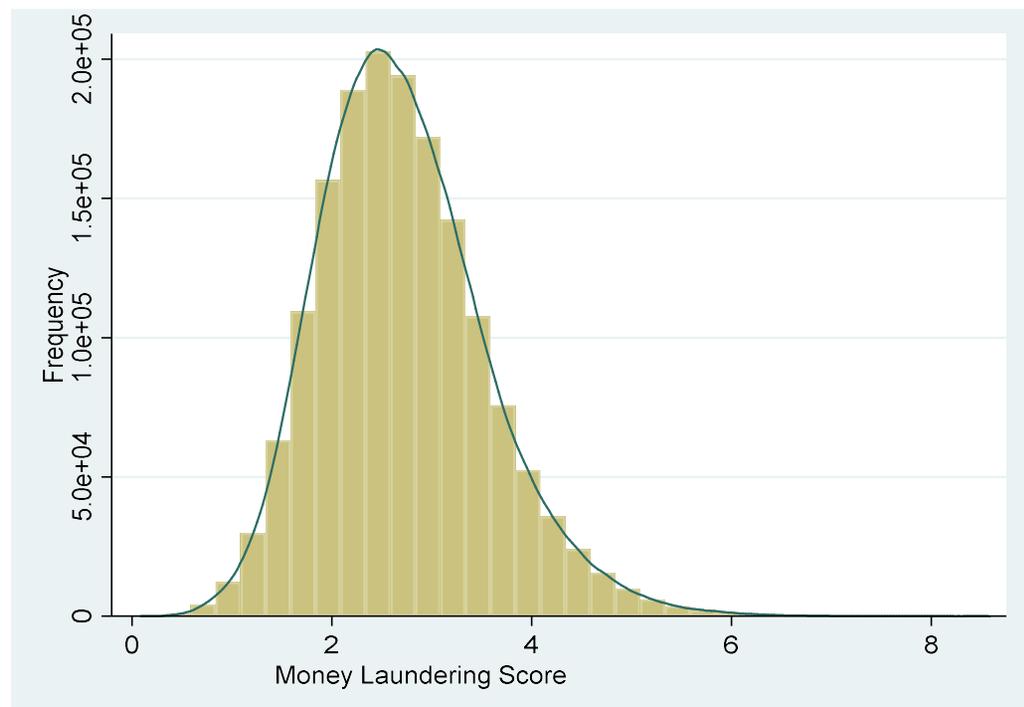
- Number of buyers: 1,612,630
- Average ML Score (MLS): 2.71
- Standard Deviation: 0.84
- Minimum Observed Score: 0.086
- Maximum Observed Score: 8.54

(Source JLR and CMHC own calculations)



Distribution of MLS

- Most cases are concentrated around the mean (2.71).
- Very Few Observations above 6.



Distribution of MLS

ML Score	Frequency	Percent	Cumulat.
0	11,797	0.7	0.7
1	305,724	19.0	19.7
2	760,376	47.2	66.8
3	418,339	25.9	92.8
4	98,448	6.1	98.9
5	15,798	1.0	99.9
6	1,980	0.1	99.99
7	160	0.01	100
8	8	0	100

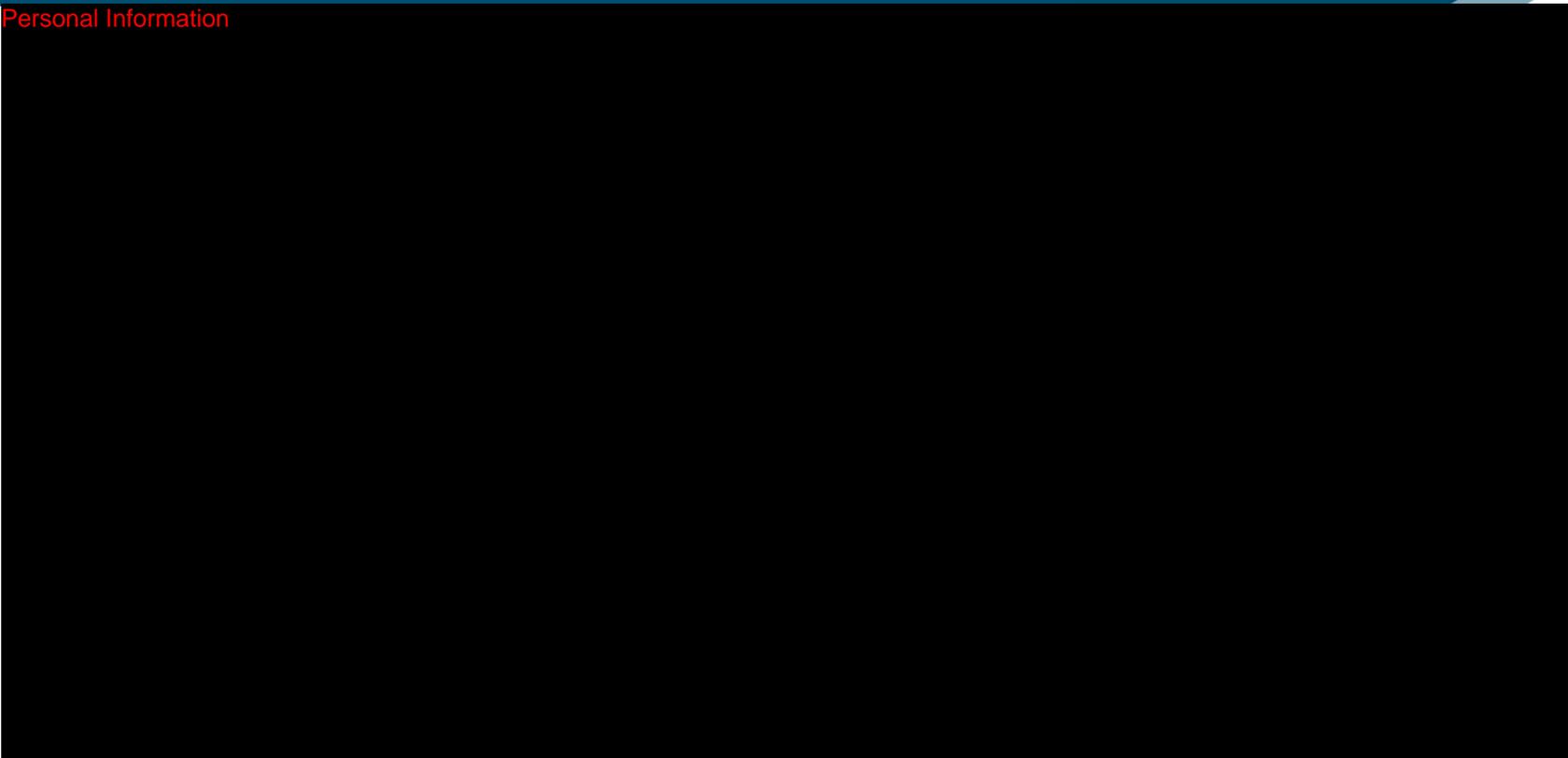
Step 2: Validation from secondary Sources

- Dow Jones PEP database for sanction / criminal information
- Bureau van Dijk (Moody's) / Dun and Bradstreet database for Ultimate Beneficial Ownership
- Federal and Provincial corporate registries
- Canadian Legal Information Institute (CANLII) database
- Build evidence on cases with elevated ML risk



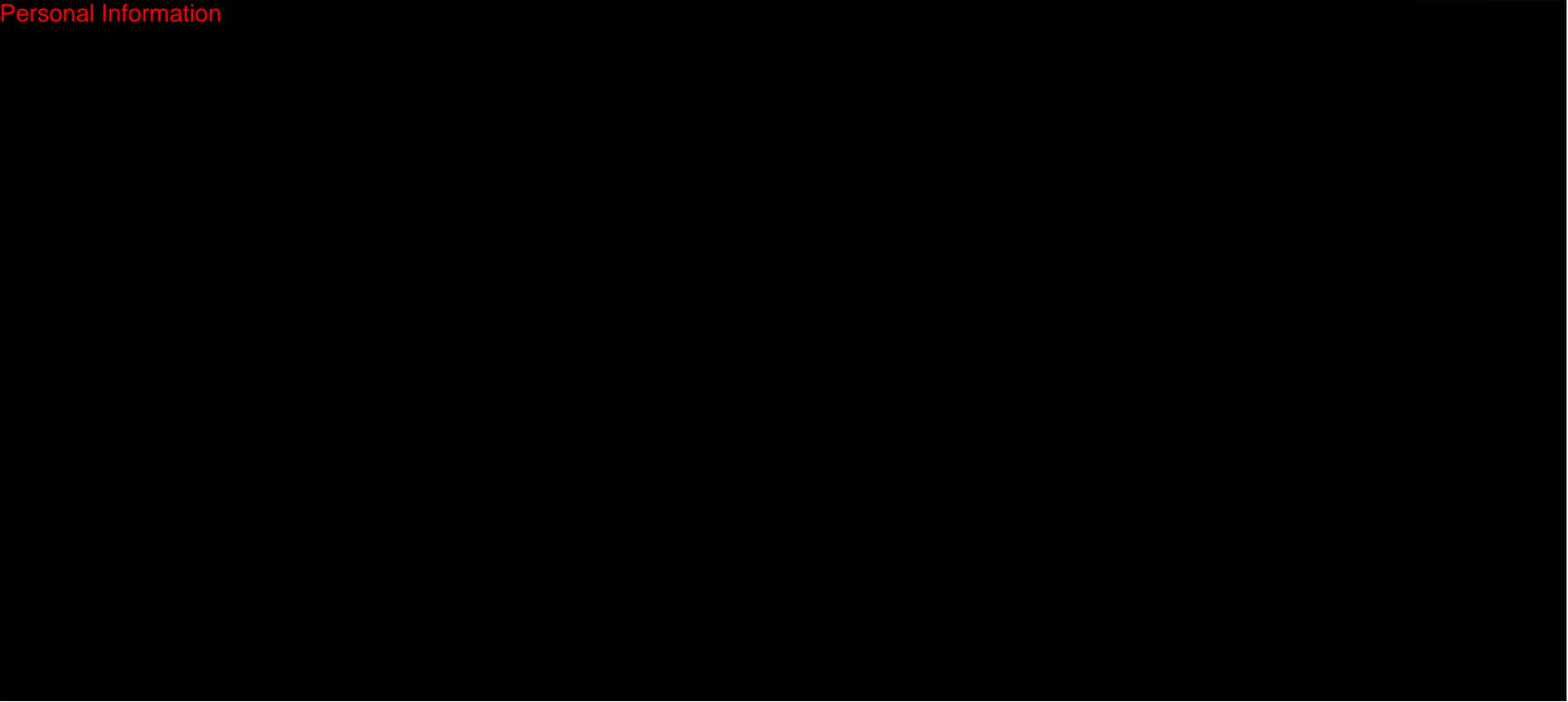
Case 1

Personal Information



Case 2 (Company B)

Personal Information



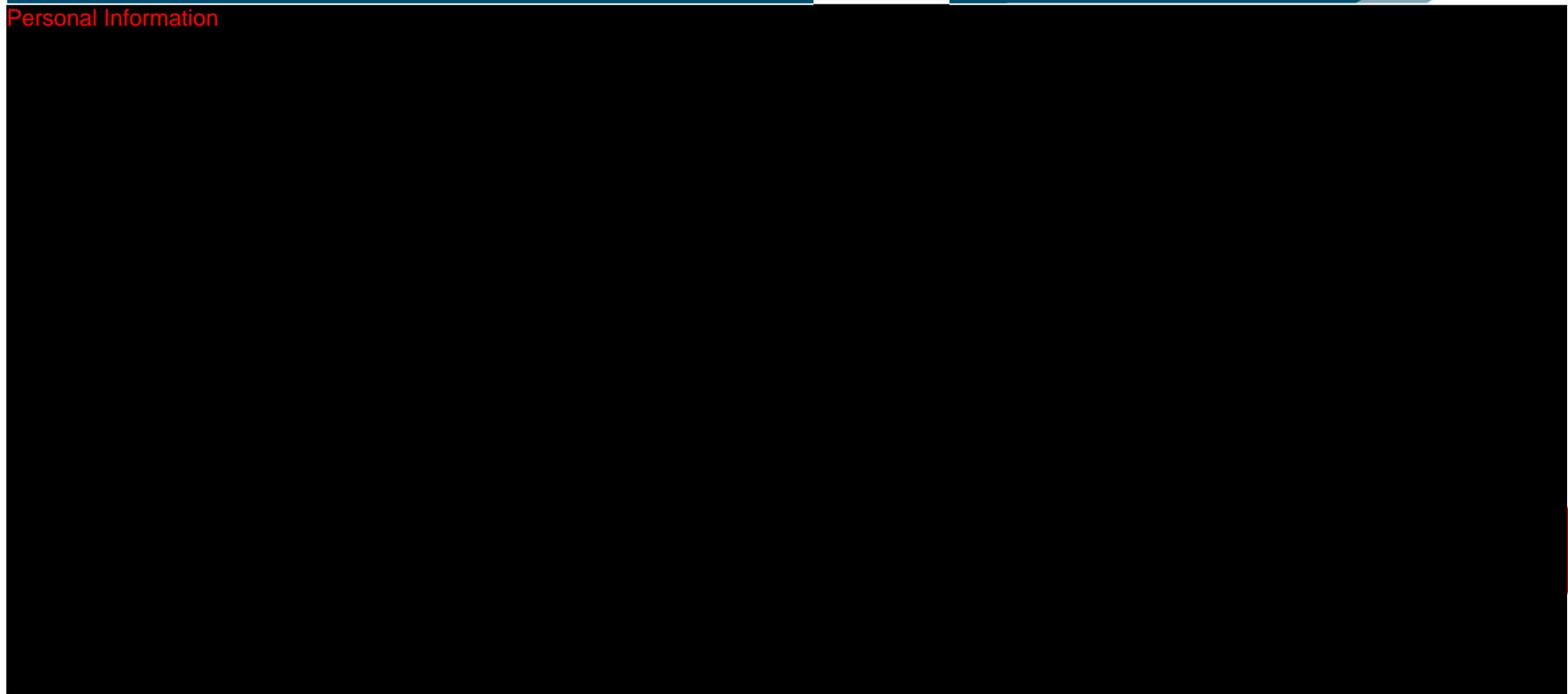
Case 2 continued (Company B)

Personal Information



Case 3

Personal Information



Summing Up

- 2 step methodology
 1. Estimate ML risk scores based on set indicators
 2. Validation from secondary sources
- 72% buyers can be considered to be safe
- Use of secondary sources help further validate risky buyers

