



EAD Variance Analyzer with LangChain

Upload two datasets (old vs new) to analyze EAD changes and get an AI explanation.

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Data1 v4.csv 16.8KB



Data2 v4.csv 16.8KB



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Top 3 netting set by variance



Top 3 Netting Sets by EAD Variance

Based on the EAD comparison data, here are the top 3 netting sets ranked by absolute EAD variance (EAD $_{\Delta}$):

1. Netting Set ID 2: -\$38.4M variance (EAD decreased)

- Old EAD: \$38.4M → New EAD: \$0.0M

- **Key Driver:** Massive increase in eligible collateral from \$23.5M to \$815.3M
- **Root Cause:** LRM Flag changed from 'N' to 'Y' for Security 11 (Txn 11), making previously ineligible collateral now eligible for netting
- **Impact Breakdown:**
 - Collateral increased by \$791.8M
 - Security Addon increased by \$285.1M
 - FX Addon increased by \$90.1M
 - Net result: EAD reduced to zero due to over-collateralization

2. Netting Set ID 5: +\$8.1M variance (EAD increased)

- **Old EAD:** \$55.7M → **New EAD:** \$63.8M
- **Key Drivers:**
 - Market Value increased by \$6.0M (from \$2.0M to \$8.0M for Security 28, Txn 28)
 - Illiquid Flag changed from 'Y' to 'N' for Security 24 (Txn 24)
- **Impact Breakdown:**
 - Exposure increased by \$6.0M
 - Security Addon increased by \$1.4M
 - FX Addon increased by \$0.7M
- **Note:** The Illiquid Flag change from 'Y' to 'N' made the security liquid, but since this is a Buy transaction, it affected Scenario B collateral calculations

3. Netting Set ID 3: +\$2.7M variance (EAD increased)

- **Old EAD:** \$5.0M → **New EAD:** \$7.8M
 - **Key Driver:** MPOR (Margin Period of Risk) increased from 10 to 20 days across all transactions
 - **Impact Breakdown:**
 - Security Addon increased by \$1.9M (due to $\sqrt{(MPOR/10)}$ scaling factor: $\sqrt{2}$ vs $\sqrt{1} = 1.414x$ multiplier)
 - FX Addon increased by \$0.8M (same MPOR scaling effect)
 - **Additional Factor:** Illiquid Flag changed from 'N' to 'Y' for Security 17 (Txn 17), further reducing eligible collateral in Scenario B
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Summary Pattern

- Netting Set 2 shows the most dramatic change due to collateral eligibility improvements
- Netting Sets 3 & 5 show EAD increases driven by MPOR extensions and market value changes
- MPOR changes have multiplicative effects on both Security and FX addons through the $\sqrt{(\text{MPOR}/10)}$ scaling factor



Give me a summary of missing values in input



Summary of Missing Input Data

Based on the Missing Input Data report, there are **22 instances** of missing or null values across the input dataset, affecting **6 unique netting sets** and spanning **2 reporting dates** (6/29/2025 and 6/30/2025).

Missing Data by Category

1. ISO Currency Code Missing (7 instances)

- **Affected Netting Sets:** 1, 3, 9
- **Affected Transactions:** Txn 1, Txn 17, Txn 40
- **Issue:** ISO CCY is null when Market Value is not null/non-zero
- **Impact:** This affects the currency denomination of collateral, which is critical for FX addon calculations
- **Dates:** Both 6/29/2025 and 6/30/2025

Breakdown:

- Netting Set 1 (Txn 1): 2 occurrences
 - Netting Set 3 (Txn 17): 2 occurrences
 - Netting Set 9 (Txn 40): 2 occurrences
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2. Agreement Settlement Currency Code Missing (14 instances)

- **Affected Netting Set:** 2 only
- **Affected Transactions:** Txn 7, Txn 8, Txn 9, Txn 10, Txn 11, Txn 12, Txn 13
- **Issue:** Agr Settlement Ccy code is null
- **Mitigation:** System defaulted to USD
- **Impact:** If the actual settlement currency is not USD, FX addon calculations may be understated or overstated
- **Dates:** Both 6/29/2025 and 6/30/2025

Breakdown:

- 7 transactions on 6/29/2025
 - 7 transactions on 6/30/2025 (same transactions repeated)
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3. Principal Currency Code Missing (2 instances)

- **Affected Netting Set:** 5
 - **Affected Transaction:** Txn 24
 - **Issue:** Prin CCY is null when Principal is not null/non-zero
 - **Impact:** Affects exposure currency determination for trades where Principal represents the exposure amount
 - **Dates:** Both 6/29/2025 and 6/30/2025
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Key Observations

1. **Netting Set 2 is most affected** with 14 out of 22 missing values (63.6%), all related to settlement currency
 - However, the system applied a USD default, which may mask the true risk if actual currencies differ
2. **Currency-related fields dominate** the missing data:

- ISO Currency: 31.8% of missing values
 - Settlement Currency: 63.6% of missing values
 - Principal Currency: 9.1% of missing values
3. **Data quality is consistent across dates** - the same transactions have missing values on both reporting dates, suggesting systematic data sourcing issues rather than sporadic errors
 4. **Critical for FX Addon calculations** - All missing fields relate to currency denomination, which directly impacts the FX Addon component of EAD. The FX addon applies an 8% haircut to currency mismatches, so incorrect currency assumptions could materially misstate risk
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Recommended Actions

1. **Investigate source systems** for Netting Sets 1, 2, 3, 5, and 9 to determine why currency fields are not populated
2. **Validate USD default assumption** for Netting Set 2 - confirm whether these 7 transactions are actually USD-denominated
3. **Implement data quality controls** to flag transactions with non-zero monetary amounts but missing currency codes before EAD calculation
4. **Review FX Addon calculations** for affected netting sets to assess potential risk measurement impact

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