Sportsbetting model analysis :

=== Analyzing 1X2 Market ===

Modeling Recommendations:

Data Preparation:
- Handle missing values - consider imputation

Feature Engineering:
- Handle multicollinearity - consider feature selection or PCA
- Consider transforming id - non-normal distribution
- Consider transforming team1_score_ht - non-normal distribution
- Consider transforming team2_score_ht - non-normal distribution
- Consider transforming team1_score_ft - non-normal distribution
- Consider transforming team2_score_ft - non-normal distribution
- Consider transforming total_goals - non-normal distribution
- Consider transforming goals_per_half - non-normal distribution
- Consider transforming score_changed - non-normal distribution
- Consider transforming over_0_5 - non-normal distribution
- Consider transforming over_1_5 - non-normal distribution
- Consider transforming over_2_5 - non-normal distribution
- Consider transforming over_3_5 - non-normal distribution
- Consider transforming over_4_5 - non-normal distribution
- Consider transforming over_5_5 - non-normal distribution
- Consider transforming under_0_5 - non-normal distribution
- Consider transforming under_1_5 - non-normal distribution
- Consider transforming under_2_5 - non-normal distribution
- Consider transforming under_3_5 - non-normal distribution
- Consider transforming under_4_5 - non-normal distribution
- Consider transforming under_5_5 - non-normal distribution
- Consider transforming goal_difference - non-normal distribution
- Consider transforming clean_sheet_team1 - non-normal distribution
- Consider transforming clean_sheet_team2 - non-normal distribution
- Consider transforming btts - non-normal distribution
- Consider transforming day_of_month - non-normal distribution
- Consider interaction features between: total_goals × goals_per_half, total_goals × over_2_5, total_goals × under_2_5

=== Analyzing BTTS Market ===

Modeling Recommendations:

Data Preparation:
- Handle missing values - consider imputation

Feature Engineering:

- Handle multicollinearity - consider feature selection or PCA
- Consider transforming id - non-normal distribution
- Consider transforming team1_score_ht - non-normal distribution
- Consider transforming team2_score_ht - non-normal distribution
- Consider transforming team1_score_ft - non-normal distribution
- Consider transforming team2_score_ft - non-normal distribution
- Consider transforming total_goals - non-normal distribution
- Consider transforming goals_per_half - non-normal distribution
- Consider transforming score_changed - non-normal distribution
- Consider transforming over_0_5 - non-normal distribution
- Consider transforming over_1_5 - non-normal distribution
- Consider transforming over_2_5 - non-normal distribution
- Consider transforming over_3_5 - non-normal distribution
- Consider transforming over_4_5 - non-normal distribution
- Consider transforming over_5_5 - non-normal distribution
- Consider transforming under_0_5 - non-normal distribution
- Consider transforming under_1_5 - non-normal distribution
- Consider transforming under_2_5 - non-normal distribution
- Consider transforming under_3_5 - non-normal distribution
- Consider transforming under_4_5 - non-normal distribution
- Consider transforming under_5_5 - non-normal distribution
- Consider transforming goal_difference - non-normal distribution
- Consider transforming clean_sheet_team1 - non-normal distribution
- Consider transforming clean_sheet_team2 - non-normal distribution
- Consider transforming day_of_month - non-normal distribution
- Consider separate first/second half BTTS features
- Consider interaction features between: total_goals × goals_per_half, total_goals × over_2_5, total_goals × under_2_5

=== Analyzing OVER_UNDER Market ===

Modeling Recommendations:

Data Preparation:
- Handle missing values - consider imputation

Feature Engineering:
- Handle multicollinearity - consider feature selection or PCA
- Consider transforming id - non-normal distribution
- Consider transforming team1_score_ht - non-normal distribution
- Consider transforming team2_score_ht - non-normal distribution
- Consider transforming team1_score_ft - non-normal distribution
- Consider transforming team2_score_ft - non-normal distribution
- Consider transforming total_goals - non-normal distribution
- Consider transforming goals_per_half - non-normal distribution
- Consider transforming score_changed - non-normal distribution
- Consider transforming over_0_5 - non-normal distribution

- Consider transforming over_1_5 - non-normal distribution
- Consider transforming over_3_5 - non-normal distribution
- Consider transforming over_4_5 - non-normal distribution
- Consider transforming over_5_5 - non-normal distribution
- Consider transforming under_0_5 - non-normal distribution
- Consider transforming under_1_5 - non-normal distribution
- Consider transforming under_2_5 - non-normal distribution
- Consider transforming under_3_5 - non-normal distribution
- Consider transforming under_4_5 - non-normal distribution
- Consider transforming under_5_5 - non-normal distribution
- Consider transforming goal_difference - non-normal distribution
- Consider transforming clean_sheet_team1 - non-normal distribution
- Consider transforming clean_sheet_team2 - non-normal distribution
- Consider transforming btts - non-normal distribution
- Consider transforming day_of_month - non-normal distribution
- Consider separate half-specific goal features
- Consider interaction features between: total_goals × goals_per_half, total_goals × under_2_5, over_0_5 × under_0_5

=== Double Chance Market Insights ===

Overall Probabilities:
1X: 65.6%
X2: 52.9%
12: 68.4%

Best Conditions by Market:

1X:
Overall Success Rate: 65.6%
Best in Competition: League
Optimal Goals Range: 1-2

X2:
Overall Success Rate: 52.9%
Best in Competition: Cup
Optimal Goals Range: 1-2

12:
Overall Success Rate: 68.4%
Best in Competition: Cup
Optimal Goals Range: 2-3

HT-FT Conversion Rates:
Home Lead Conversion: 0.0%
Away Lead Conversion: 0.0%
Draw Stability: 28.2%

Success by Goal Margin:

Margin of 0 goal(s):
1X: 79.3%
X2: 79.3%
12: 0.0%

Margin of 1 goal(s):
1X: 56.3%
X2: 43.7%
12: 100.0%

Margin of 2 goal(s):
1X: 60.8%
X2: 39.2%
12: 100.0%

Margin of 3 goal(s):
1X: 63.7%
X2: 36.3%
12: 100.0%

Margin of 4 goal(s):
1X: 67.4%
X2: 32.6%
12: 100.0%

Margin of 5 goal(s):
1X: 69.1%
X2: 30.9%
12: 100.0%

Margin of 6 goal(s):
1X: 68.6%
X2: 31.4%
12: 100.0%

Margin of 7 goal(s):
1X: 69.2%
X2: 30.8%
12: 100.0%

Margin of 8 goal(s):
1X: 64.5%
X2: 35.5%
12: 100.0%

Margin of 9 goal(s):
1X: 50.0%
X2: 50.0%
12: 100.0%

Margin of 10 goal(s):
1X: 20.0%
X2: 80.0%
12: 100.0%

Margin of 13 goal(s):
1X: 0.0%
X2: 100.0%
12: 100.0%

Seasonal Trends:
Best month for 1X: 10