

# **Streaking and Clutching in Round-Based First Person Shooter (FPS) Esports**

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## Game types

- Search and Destroy (SnD) in Call of Duty (COD)
  - 2020-2022 Call of Duty League (CDL) matches (qualifiers and majors)
  - 4v4.
  - First to 6 round wins
  - Teams swap sides (offense and defense) after every round
- Plant/Defuse in Valorant
  - Data from Valorant professional league, updated through January 1, 2022
  - 5v5
  - First to 13 round wins
  - One team plays offense in 12 consecutive rounds before swapping sides
  - Must win by 2 rounds

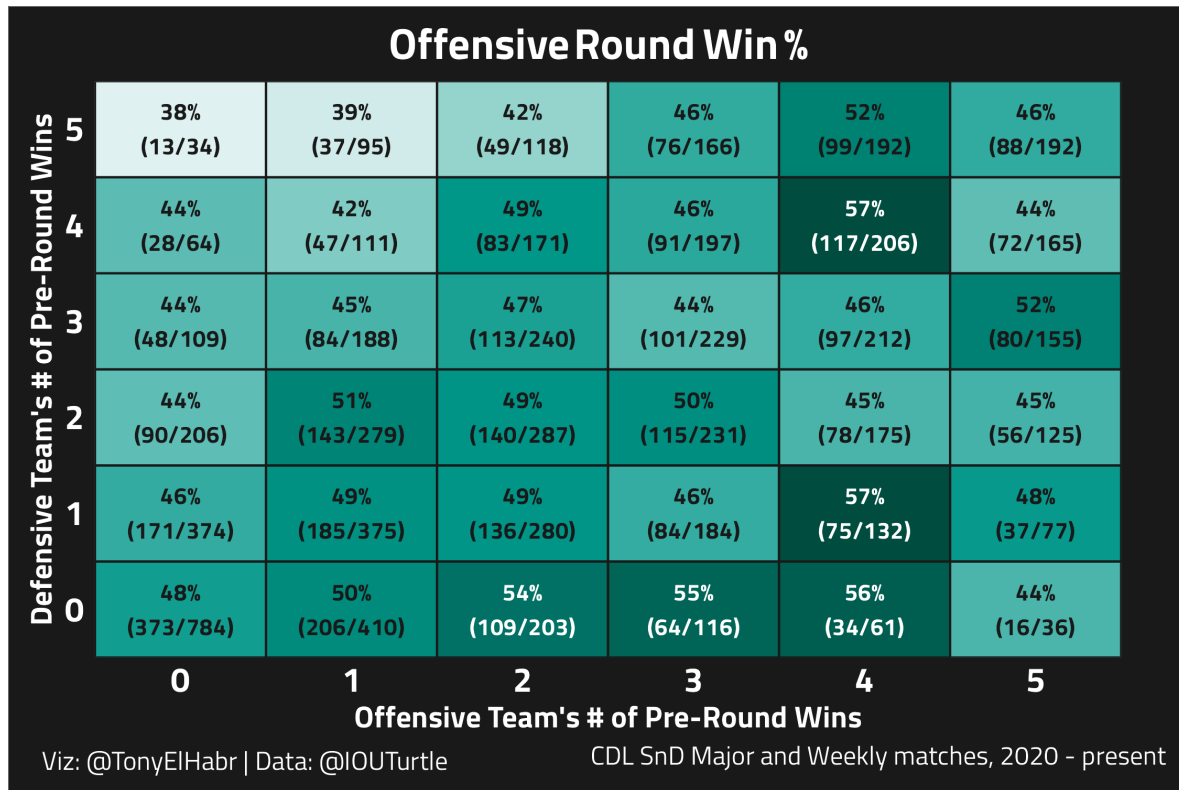
## **How does a team win a round of COD SnD / Valorant plant/defuse?**

1. One team eliminates all members of the other team prior to a bomb plant.
2. The offensive team eliminates all members of the defensive team after a bomb plant.
3. The defensive team defuses the bomb after a bomb plant.  
Often the defensive team will try to eliminate all o team members prior to making the defuse, but in some cases, they may try to "ninja" defuse.
4. The offensive team does not make a plant by the time the round timer ends.

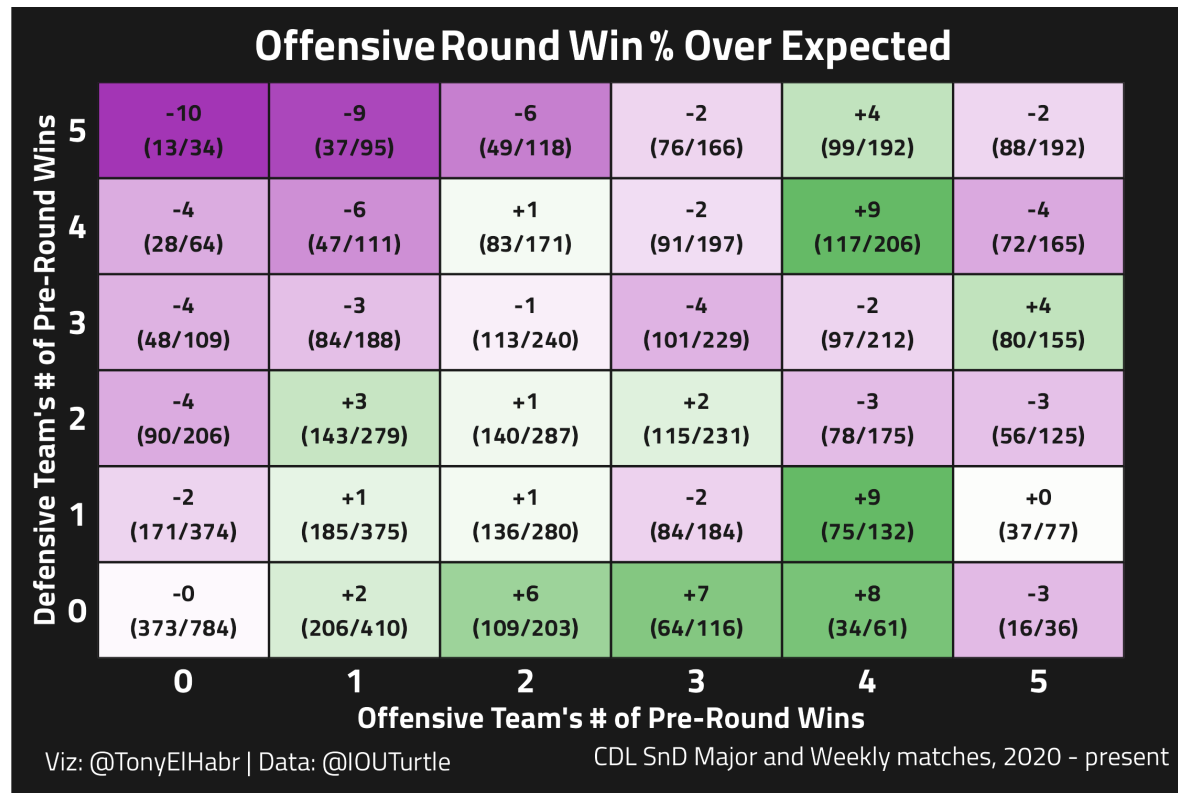
## COD SnD data overview

- Total series: **784**
- Total rounds: **7,179**
- Offensive plant %: **52%**
- Offensive win %: **48%**
- Win % when planting: **66%**
- Win % when earning first blood: **73%**

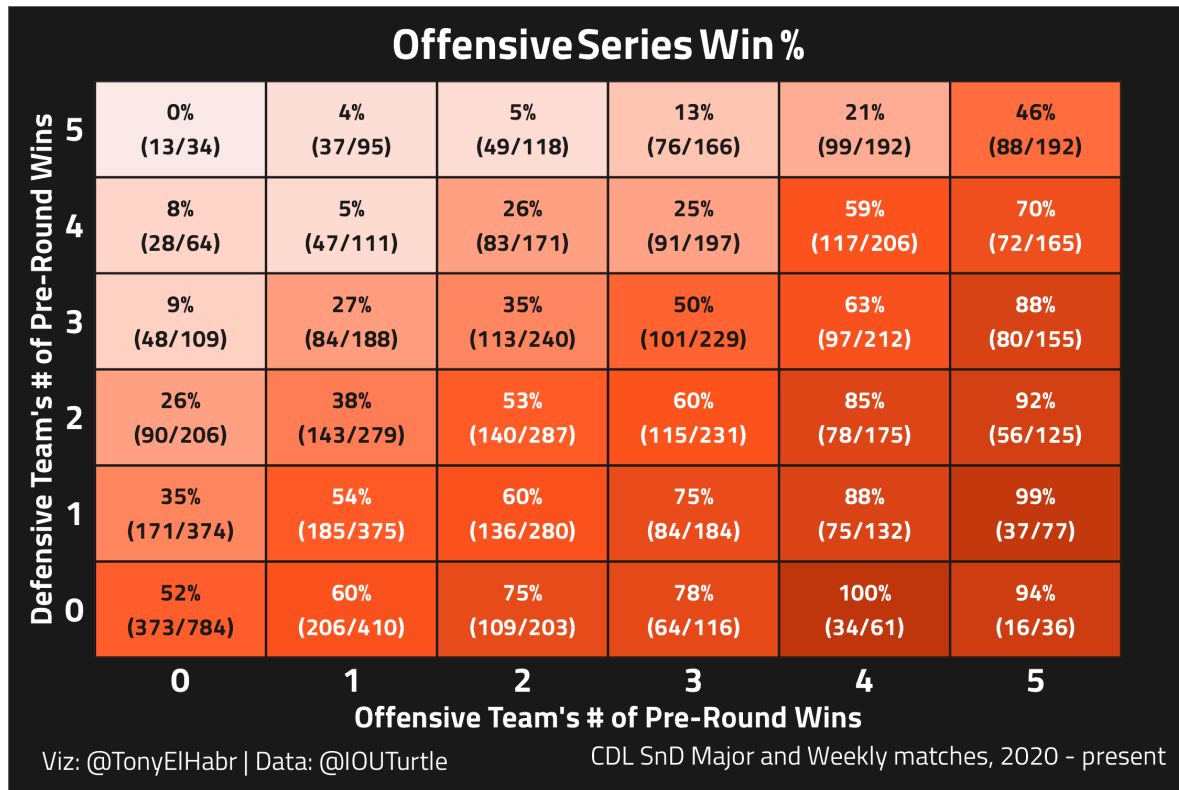
## What are your chances of winning a round, given the series state?



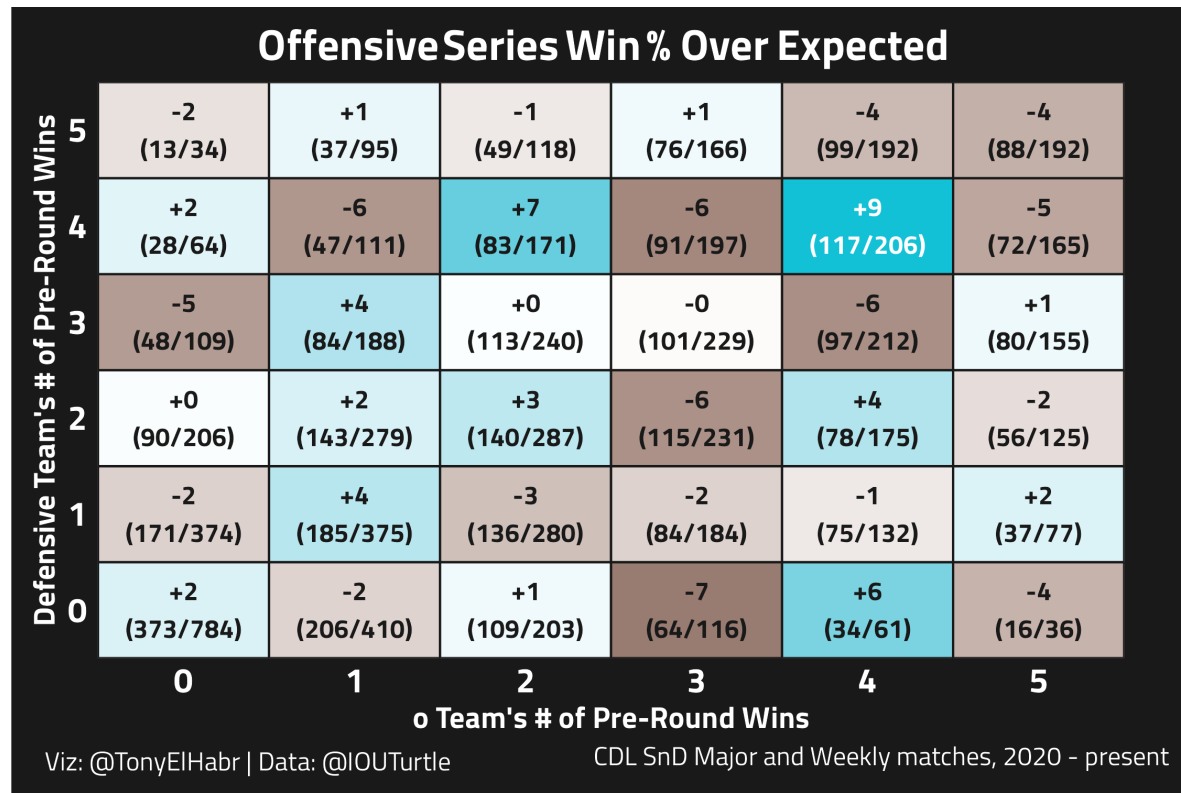
## How do the empirical round results compare to expectation?



## What are your chances of winning the series, given the series state?

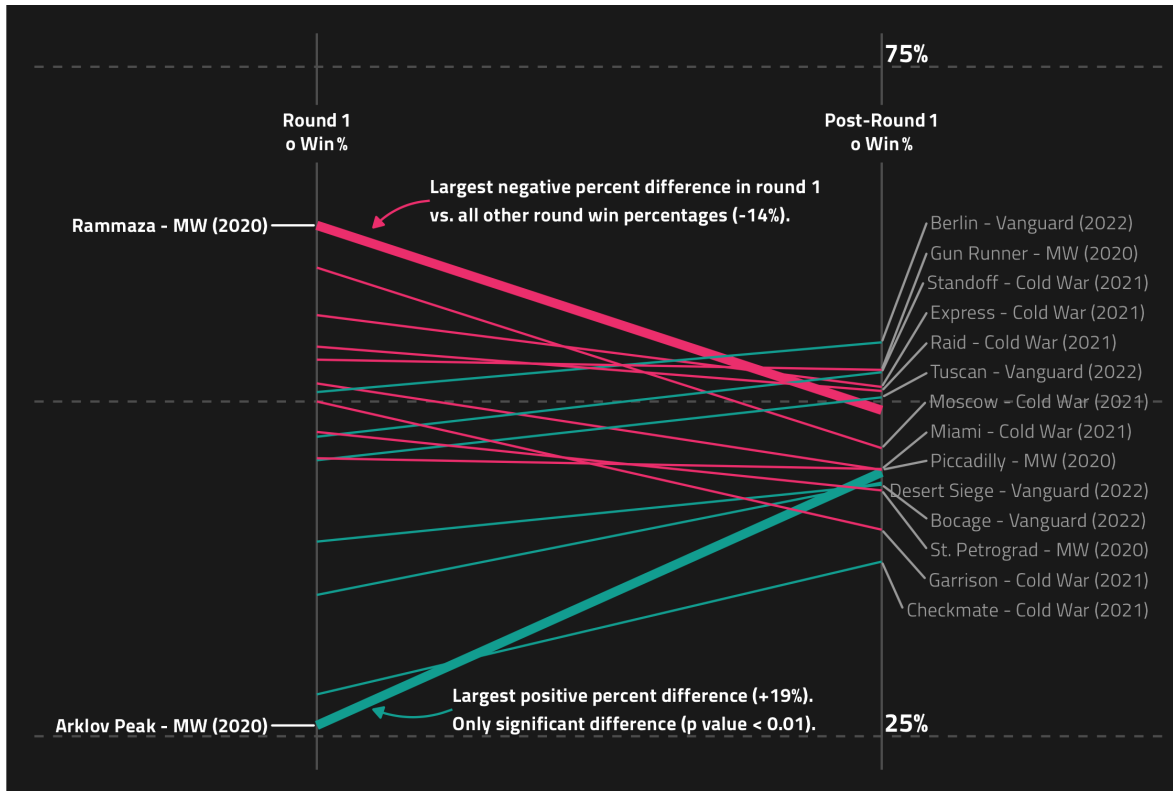


## How do the empirical series results compare to expectation?

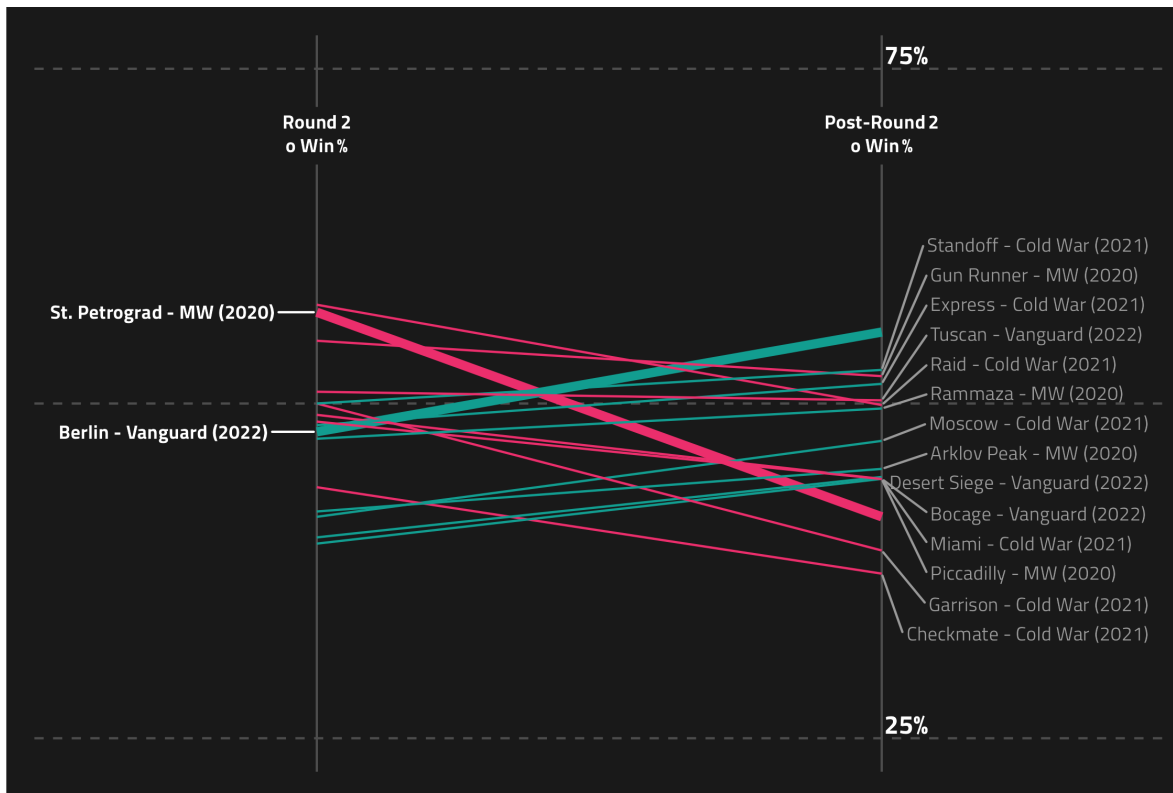




## Are offensive win %'s different in round 1?



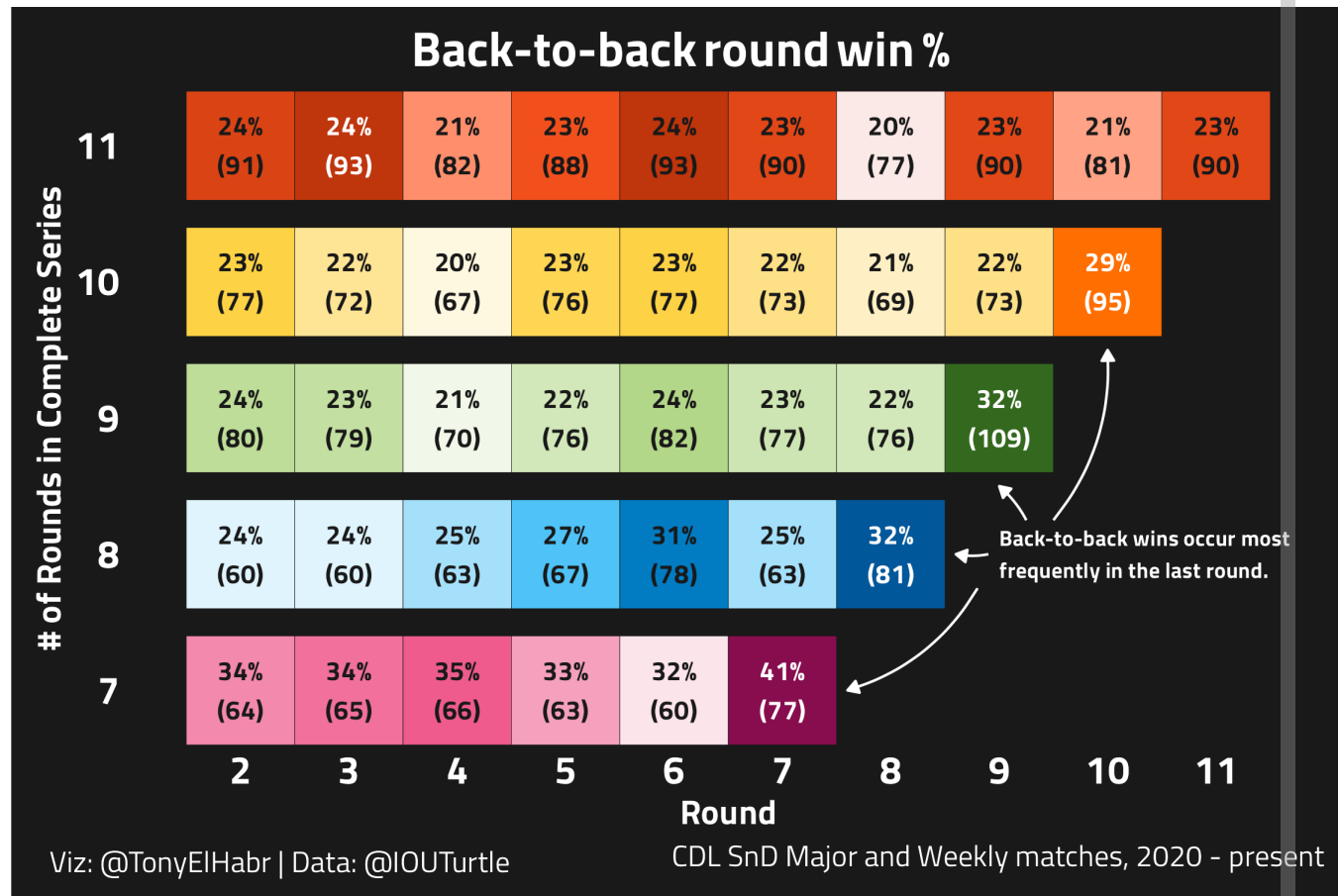
## Are offensive win %'s different in round 2?



## **What are the most common series winning states?**

## **How do end states compare to expectation?**

## When do back-to-back round wins occur?



## Is there evidence for the “hot hand”?

- Round win % after a streak of 3 round wins:
- Expected: **38.4%**
- Actual: **55.7%** (352 / 632 )

## What is the optimal strategy?

**Error**

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