

## Risky Business Week

### Late Game Leverage

In the late stages of a poker tournament, as the number of big blinds starts to dwindle, skilled poker players recognize the necessity of taking binary action. 'Push or fold' becomes the optimal strategy. Similarly, fourth down strategies in the late stages of a football game can become justifiably more aggressive. However, these decisions still require careful calculation and are often quite complex, especially when the game is close.

As the Buffalo Bills were mounting a comeback Sunday afternoon against the Tampa Bay Buccaneers, some difficult decisions arose for Sean McDermott during the fourth quarter and in overtime. Before we get to that, let's look at some earlier decisions that were somewhat costly to the Bills.

<b>Clock</b>	<b>Score</b>	<b>Situation</b>	<b>Bills Choice</b>	<b>Optimal</b>	<b>Cost</b>
9:32 second quarter	Trailing 10-0	Fourth-and-goal, Bucs 3-yard line	Field goal attempt	Go	-2.2% GWC
12:35 third quarter	Trailing 24-3	Fourth-and-2, Bills 45-yard line	Fake punt, Go	Go	+0.6% GWC*
2:19 third quarter	Trailing 24-10	Fourth-and-3, Bills 45-yard line	Punt	Go	-1.4% GWC

\*While we agreed with going for it, the fake punt strategy seemed unnecessary. It was a mathematically defensible decision to attempt the first down, and simply putting the ball in Josh Allen's hands seemed more appropriate.

Now moving on to the Bills' final drive in regulation and the first possession of overtime.

<b>Clock</b>	<b>Score</b>	<b>Situation</b>	<b>Bills Choice</b>	<b>Optimal</b>	<b>Cost</b>
1:48 fourth quarter	Trailing 27-24	Fourth-and-4, Bills 40-yard line	Go	Go	+19.7% GWC
0:22 fourth quarter	Trailing 27-24	Fourth-and-2, Bucs 7-yard line	Field Goal	Field Goal	+7.9% GWC*
8:58, first possession of overtime	Tied 27-27	Fourth-and-4, Bills 31-yard line	Punt	Punt	+2.1% GWC

With no timeouts remaining, the Bills decision to go for it on fourth and 4 from their own 40-yard line is a no-brainer. Anything else is suicide. The final choice of regulation to kick the field goal is far more interesting. However, there just isn't enough time on the clock to justify going for it as the Bills were out of timeouts. With two timeouts, it would have slightly tipped the decision in favor of going for it. Finally, the fourth-and-4 choice in overtime is about as highly leveraged as a decision can be, and surprisingly close. The Bills correctly chose to punt which produced 2.1% more wins on average per the simulation. If it was a fourth-and-two rather than a fourth-and-four it would have been a breakeven decision to go for it.