DEVON CORNELIUS CONSULTING

DATA ANALYSIS

CAN YOU BUY A SUPER BOWL?

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SUMMARY

I'm glad you're here–hopefully, you will be too once you learn the answer to the question we posed.

Can you buy a Super Bowl?

What we're really asking is, does paying the most for player salaries improve a team's chances of winning the championship? The ongoing theory that better players command higher salaries could lead us to believe that a higher-priced team would be better than a team comprised of lower-priced players.

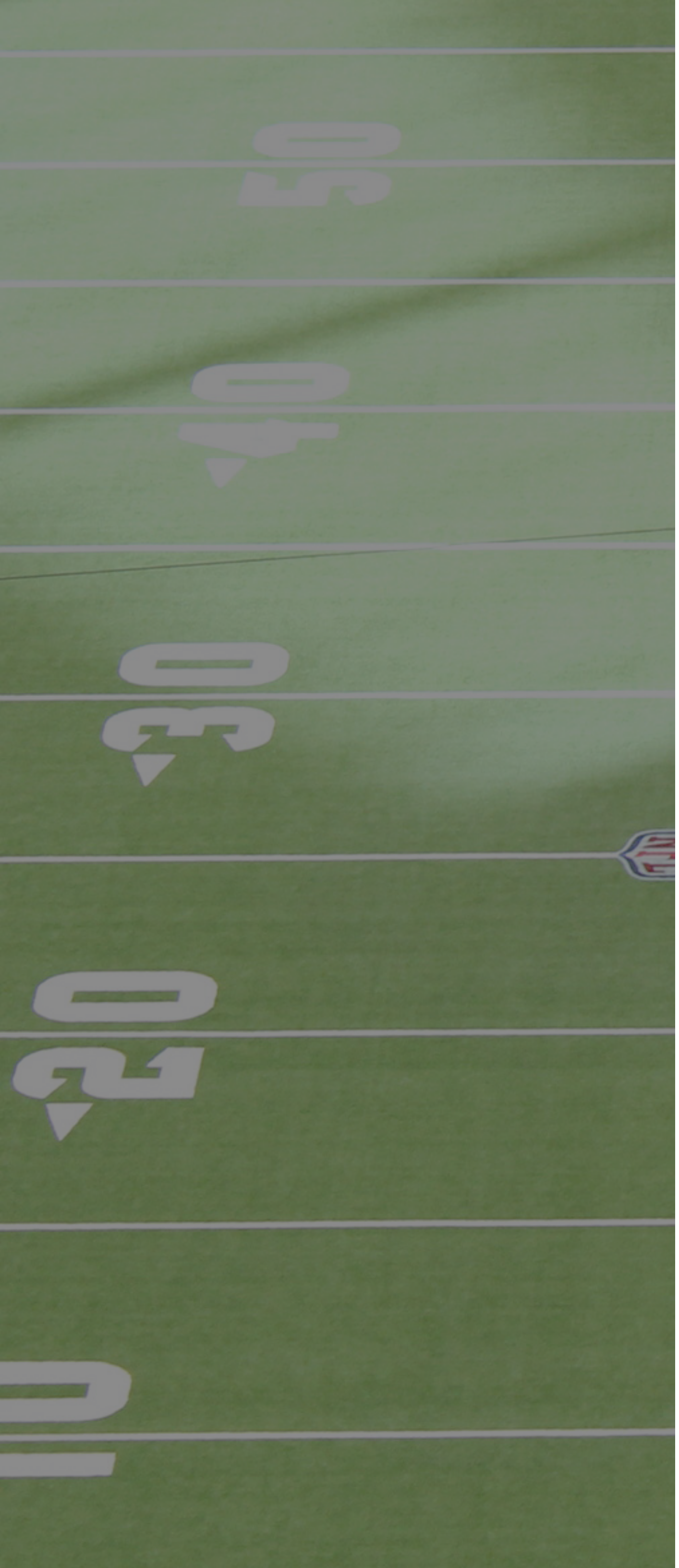
You might be surprised at what we found. A higher-priced team often leads to a higher winning percentage, however, teams with the highest salaries don't often win the Super Bowl. Since 2000, it's never happened that the most expensive team won the title. It's also rare for the top-ranked team after the regular season to win it all. It happened twice in that same span.

Here's what the data says.

The average ranking for Super Bowl-winning teams, for player salaries, is 13th. And the ideal win-loss ranking for teams entering the playoffs is between 3rd and 7th place.

Yes, you can buy a Super Bowl but only for the right price. It won't be the highest, nor the lowest, price. It will be close to the middle. You don't want to be the best team, just the team that's best-positioned for a Super Bowl run.

We suggest assembling a team that combines high-priced talent with inexpensive players–hopefully, a few talented players on team-friendly contracts. Spend enough money to win, but not too much. You don't want to be the best after the regular season. It's the Super Bowl that counts!



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INTRO

Every year, 32 teams in the National Football League (NFL) compete for the league championship, the Super Bowl. It's a prestigious honour and is often a career highlight for players, coaches, and team owners alike. Owning an NFL franchise is a significant investment and an exclusive group with only 32 such opportunities in the world. If one of the main goals is to win the Super Bowl, owners are seeking any available advantage to increase the chances of their team's success. Often, the strategy for owners is to assemble the most-talented collection of players.

The more experienced and better skilled players often earn higher salaries, so it begs the question: is the team with the highest total for player salaries more likely to win the Super Bowl? We wonder how valid the strategy is to assemble the best, or highest paid, players in pursuit of the title.

We will explore the effect of money spent on rosters in comparison to win-loss records and look at past Super Bowl winners and compare their spending against other teams. As owners seek competitive advantages, it's important to examine how team salaries affect the odds of winning.

SETTING THE STAGE

With the significant cost of purchasing an NFL team, owners seek a financial return for their investment. For reference, the most recent team sale was the Carolina Panthers in 2018 for $2.3 billion and the most valuable NFL team in 2019 was the Dallas Cowboys, valued at $5.5 billion[1].

What's the best way to ensure profits? Winning. The more a team wins, the more fans they draw (locally and internationally), which leads to increased sales (game attendance, merchandise, broadcasting deals, etc.). And of course, you want to win the Super Bowl—it's televised in over 130 countries to more than 100 million viewers.

1 Forbes, 2020.

TEAM-BUILDING STRATEGY

Though several factors fall outside their control, owners—along with the teams' general managers—are tasked with assembling (and paying) players to be on their team. A common belief is that players with better skills earn higher salaries. If the logic proves true, then a better team should cost more than worse teams. Do win-loss records, and more importantly, the Super Bowl history, also reflect that line of thinking? If so, owners would have a viable team-building strategy to justify spending more on player salaries to attract the best players. If not, then we want to know how player salaries affect winning, if at all.

This information is valuable to NFL teams as they strategize their team-building approach. It will inform how teams draft, trade, and recruit players. Do they focus more on drafting younger players (often lower salaries) or accumulating veterans and established stars (often higher salaries)? Or is there an ideal combination of the two? If winning the Super Bowl is the primary goal of all team owners, allow us to explore one possible avenue to accomplish that goal.

CAN YOU, IN ESSENCE, BUY A SUPER BOWL?

LOOK AT THE DATA

We'll start by investigating five years in NFL history, 2013-2017. Why those years, you ask? Because it was the most robust dataset that was available for free. Surely if I owned an NFL team, I'd pay for more comprehensive data but this will serve our purpose in answering this research question. Or at the very least, it will help determine whether the spending theory warrants further investigation.

Looking at total team salaries over those five years, we see a significant variance in team spending (see Figure 1). The Cincinnati Bengals were the biggest spenders at nearly $1.35 billion, while the Cleveland Browns spent the least, at around $1.06 billion. If you're wondering, neither of those teams won a Super Bowl in that period. But let us look closer at each team's winning percentage in

DATA TIME

that time. We want to see how their spending relates to the percentage of games they won (see Figure 2).

Cincinnati had a win percentage of 32.32%; though they were first in spending, it resulted in the tenth highest win rate. The most successful team in terms of win rate, New England Patriots, had a win percent of 43.32% while ranking 19th for total salaries.

Does that answer our question? No, but it does make us wonder how that could be possible.

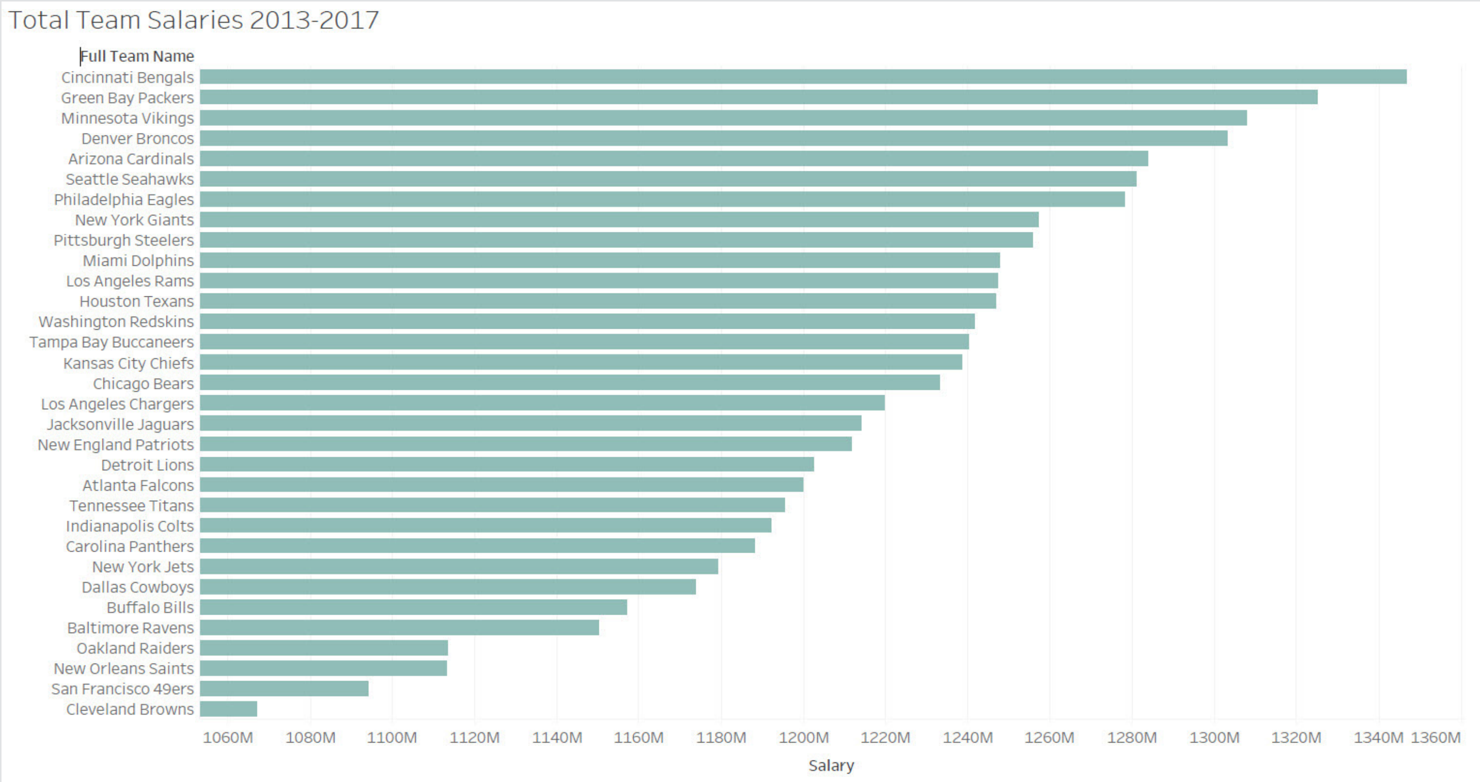
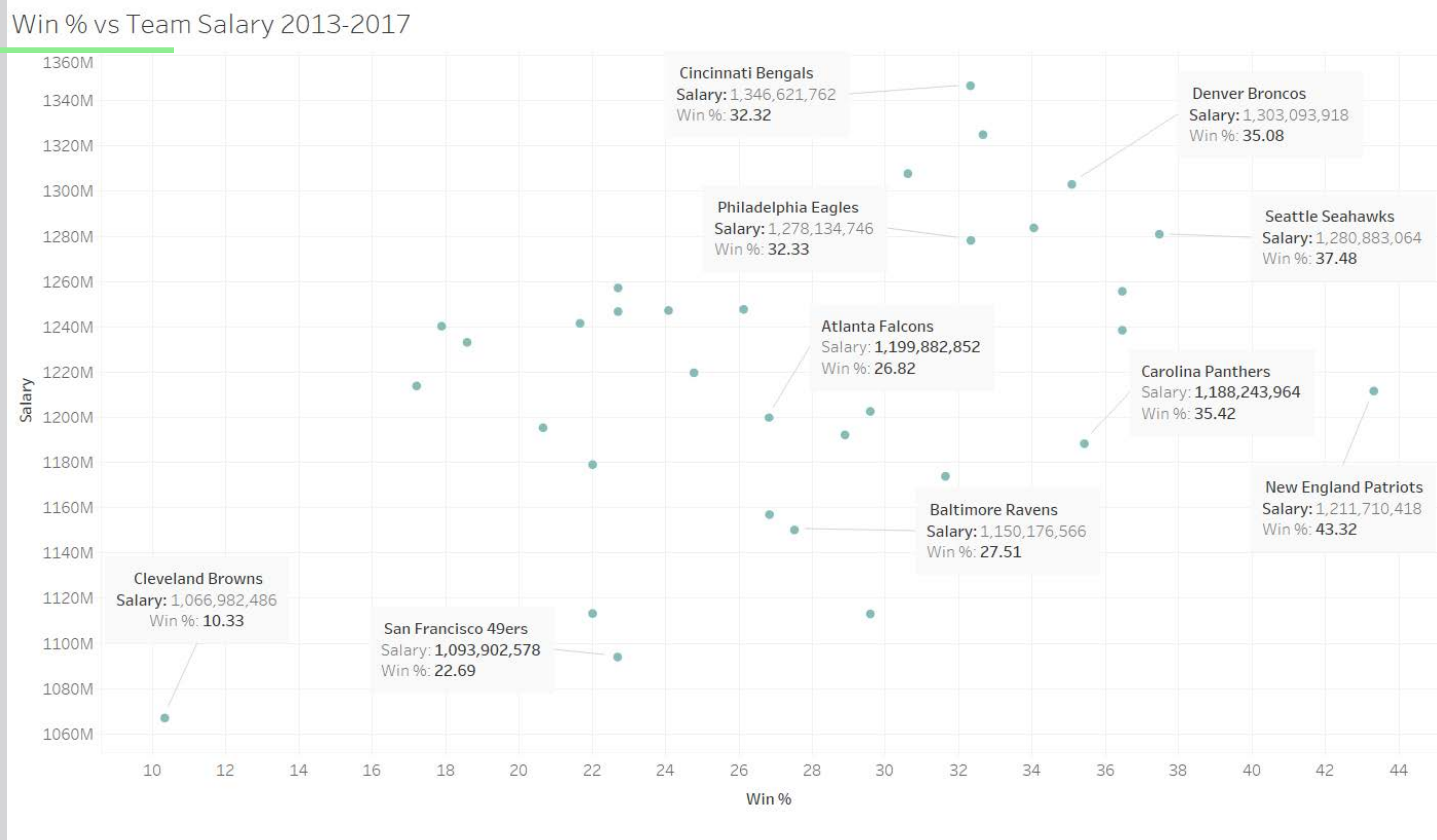


Figure 1

DATA TIME

When we look at Cleveland, the team that spent the least also performed the worst. It seems to show that our argument has some merit. The second-lowest team salary in that period was the San Francisco 49ers, who had the eighth-lowest win rate at 22.69%. Perhaps we could posit then, that low spending cannot result in success. But San Francisco played in the Super Bowl—though they lost—in 2013. So, it's not as straightforward as we might think.



Sum of Win % vs. sum of Salary. Details are shown for Full Team Name and Team Name. The view is filtered on sum of Salary, which keeps non-Null values only.

Figure 2

OUTLIERS OR TRUTH

We can always expect outliers in any dataset, which could explain San Francisco and Cincinnati. In this analysis, the data is limited to two factors, winning and player salaries. But countless factors influence NFL games. We must also consider players' injuries and illness, weather conditions, psychological concerns, and of course, luck. These can affect teams, games, and entire seasons.

It's challenging—and perhaps impossible—to look at individual seasons to determine whether the highest spending team is also the best. And is the Super Bowl winner always the best team? We'll look at that in just a bit but let's stay with this data for a little longer. Looking at five years—or longer, ideally—would help to eliminate the outliers and highlight the truth we seek.

Looking again at Figure 2, the 2013-17 Super Bowl participants are labelled so we can see how they compare with other teams for win rate and salaries in that period. In 2013, San Francisco lost to the Baltimore Ravens, a team that ranked 26th in salaries and 15th in win rate. The 2014 Super Bowl teams, Seattle Seahawks (winner) and Denver Broncos, both ranked in the top ten for salaries and win rate. In 2015, New England beat Seattle; they beat a team that spent nearly $70 million more on player salaries. In 2016, Denver beat the Carolina Panthers; a top-ten spender and winner beat a team ranked 24th in spending who had the fifth-highest win rate. New England won again in 2017, beating the Atlanta Falcons, a fellow low-spender (21st), but one who achieved a middling win rate (see Figure 3).

Figure 3

Super Bowl Teams 2013-2017

Year	Winner	Loser
2013	Baltimore Ravens	San Francisco 49ers
2014	Seattle Seahawks	Denver Broncos
2015	New England Patriots	Seattle Seahawks
2016	Denver Broncos	Carolina Panthers
2017	New England Patriots	Atlanta Falcons

WHAT DOES IT MEAN

The five-year view allows us to determine a pattern of winning and spending, instead of trying to draw conclusions from individual seasons. NFL teams are built over several years and a Super Bowl win isn't guaranteed from one good year.

New England demonstrated a pattern of winning, including two Super Bowl championships, while spending close to the median. Their win rate was nearly 6 percentage points higher than the next closest team, Seattle. But the rest of the data suggests that New England is an outlier. They are the only team in the top ten for win rate that isn't also among the top 15 spenders.

We can likely credit much of their success to two legendary fixtures: coach Bill Belichick and quarterback Tom Brady. Brady, as an aside, was known to sign contracts below his market value to help the team afford other high-priced players.[1]

Removing New England for a moment leaves Seattle, Denver, Baltimore, San Francisco, Carolina, and Atlanta as the Super Bowl participants from that period. Of those six teams, four were in the bottom half of spenders (21, 24, 28, and 31). Of those four teams, only one was in the top ten for win rate (Carolina) and they lost the big game. Four of the ten Super Bowl participants in that timeframe were among the highest spenders—though it was two teams who happened to play twice each.

Spending more for players doesn't guarantee a Super Bowl, though it worked twice. Higher spending does, however, correlate with a higher winning percentage. Seven of the top ten spenders were among the top-ten win rates for that period. We should also explore the connection between wins in the regular season and winning in the playoffs and championship.

1 Gaines, 2020.

DOES THE BEST TEAM WIN?

Year	Winner	Record	Ranking
2021	Tampa Bay Buccaneers	11-5	7
2020	Kansas City Chiefs	12-4	5
2019	New England Patriots	11-5	6
2018	Philadelphia Eagles	13-3	3
2017	New England Patriots	14-2	1
2016	Denver Broncos	12-4	5
2015	New England Patriots	12-4	4
2014	Seattle Seahawks	13-3	2
2013	Baltimore Ravens	10-6	11
2012	New York Giants	9-7	10
2011	Green Bay Packers	10-6	10
2010	New Orleans Saints	13-3	3
2009	Pittsburgh Steelers	12-4	5
2008	New York Giants	10-6	9
2007	Indianapolis Colts	12-4	5
2006	Pittsburgh Steelers	11-5	9
2005	New England Patriots	14-2	2
2004	New England Patriots	14-2	1
2003	Tampa Bay Buccaneers	12-4	3
2002	New England Patriots	11-5	6
2001	Baltimore Ravens	12-4	3
2000	St. Louis Rams	13-3	3

Figure 4

The short answer: no. We have recent examples, like the 2011-12 New York Giants who became the first 9-7 team to win a Super Bowl. They also won after the 2007-08 season when they went 10-6. Baltimore, who won in 2013, also had a 10-6 record. These records may not mean much until we look at how they ranked against the others in that season.

In Figure 4 we see the Super Bowl winners since 2000. Only twice was the champion also the top-ranked team after the regular season. The average ranking for champions was fifth. Earlier we noted that 70% of the ten winningest teams were also among the top ten spenders. Though spending more on salaries doesn't guarantee a Super Bowl, it does correlate with a better record and thus, improved chances of a championship. The best team, at least in terms of wins, doesn't often win the Super Bowl; it seems like the sweet spot is placing third to seventh.

If we look again at our 2013-2017 period, the data suggests that Denver and Carolina, along with the Pittsburgh Steelers and Kansas City Chiefs, had the best odds of a championship. Denver made two Super Bowl appearances (winning once), Carolina played and lost in their lone championship game, Pittsburgh lost the 2011 championship, and Kansas City won the Super Bowl following the 2019 season.

To the NFL team owner currently reading this, if you pay for the additional datasets, I'll happily explore this theory in depth. It seems like we've found a pattern but it's hard to say definitively with this limited information.

RECENT EXAMPLES

Let's look at the 2019-20 NFL season. Kansas City won the Super Bowl and their opponent was San Francisco. Can you guess their rankings after the regular season? The 49ers were ranked third and the Chiefs were, you guessed it, fifth. But were they among the top spenders? San Francisco was the third-highest spender and Kansas City was 29th. Again, we see that spending improves a team's chances but doesn't guarantee the Super Bowl.

Kansas City played in the Super Bowl again this past season, 2020-21, but lost to the Tampa Bay Buccaneers. After the regular season, the Chiefs were the top-ranked team and Tampa Bay was ranked seventh. Again, our Super Bowl winner fell in the sweet spot of 3rd-7th but surprisingly, both were in the bottom third of league spending (21st and 25th).

WRAP IT UP

The data tells us that the ideal ranking for a team after the regular season is 3rd to 7th. 60% of the past 22 Super Bowl winners were in that range, and the average ranking for all champions was 5th. We know the best-ranked team isn't usually the champion—it's only happened twice in that span.

That's great but that's not what we wanted to know.

We want to know if spending more on player salaries will increase a team's chances of winning the Super Bowl. The answer is complicated, but we can safely say yes, to a point. 70% of the ten winningest teams were also in the top-ten for players' salary expenses. Our recent examples, the Chiefs and Bucs, are part of the 30% that beat the odds. Their rankings did follow the pattern we observed above.

WHAT'S THE MAGIC NUMBER?

Back to the money though. You want to win but not too much, which means that you want to spend, but also, not too much. Scouring the now-defunct USA Today archives, we found the magic number. It's 13. Between 2000-09, the Super Bowl-winning team had the average rank of 13th for total team salary. Not once in those 10 years was the champion the highest-spending team; the most expensive was 2nd and the cheapest team was 31st.

The most fascinating detail: only half of the time did the Super Bowl-winning team have a player among the top-25 highest-paid players in the league. And each time, it was only one player from their team.

CAN I BUY A SUPER BOWL OR NOT?

Our answer is yes, we believe you can buy a Super Bowl, but for the right price. Again, we should qualify our results by acknowledging the limited datasets we reviewed. That said, we suggest building a team of moderately-priced players; a mix of young, inexpensive talent with a few more expensive veterans. Don't pursue the high-priced superstars and if you can, convince your best players to sacrifice money for a championship. It worked for the Patriots.

As a Giants fan, I don't like to admit that New England had the right formula. But I'd also like to remind you that both of our recent Super Bowl wins were against those same Patriots. Go Big Blue!

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