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Claremont McKenna College

An analysis of impacts of COVID-19 on salary cap allocation and performance in the National  
Football League

Submitted to  
Professor Ozbeklik

By  
Abai Houser

For  
Senior Thesis  
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## **Abstract**

Professional sports are one of the most successful industries in the world. The live spectacle and in-person nature make sporting events a unique and individual experience. COVID-19 shifted how athletic events were operated, financed, and viewed, thereby changing leagues as well. The National Football League was one of the last sports to start its season during 2019 and 2020, setting the stage as the only league to not isolate its players in a safe operating space. This paper studies the effects of COVID-19 on the salary cap management of teams after the pandemic. The findings suggest that financial metrics analyzed were not statistically significant in the relationship between financial metrics for that season. I analyze the effects by gathering data from various financial and performance metrics in the National Football league before and after the pandemic.

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## I. Introduction

This paper investigates the impact of the Covid-19 pandemic on the success of teams in the National Football League through financial metrics. The National Football League (NFL) is a professional sports organization that comprises 32 individual organizations. The League is structured into two conferences: the American Football Conference and the National Football conference. These conferences break down into four divisions where teams compete against each other for placement into the playoffs. Compared to other professional sports leagues, the National Football League is unique because it is one of the only sports leagues to impose a hard limit on its allotted organizational spending on players in a given season.

This organizational spending is broken down between offensive, defensive, and special teams' players. Each team is able to use its allotted salary cap to extend its current players' contracts, sign new players, or sign players it acquired during the yearly draft. Traditionally, teams spend a majority of their money on their quarterback, who is the leader of the team's offense and facilitates the scoring of points. Following the quarterback in spending is the left tackle position, who protects the blind spot where quarterbacks are vulnerable to injury. The left tackle serves as an insurance policy to protect the teams most prized asset.

The National Football League sets its salary cap to establish the level teams can spend on contracting players for the season that is upcoming (Tyler 2017). The salary cap in the National Football League is calculated by splitting an agreed percentage of revenues among the 32 teams. For example, to calculate the number for 2021, each team possessed 182.5 million dollars, which is 47% percent of league revenues divided by each team (Tyler 2017). It is important to note that this cap space is not the universal amount that each team holds entering the spending period.

Teams must account for any financial carry over from the past season. This means any surplus cap that is carried over, or the contractually guaranteed amount to players that is spread over future years.

In 2020, the world faced a unique challenge when the global Coronavirus pandemic caused major economic shutdowns. For months, business, schools, and social norms were put on pause. The National Football League was put in a precarious position, as it was a business that had to satisfy salaries, contracts, and stakeholders. In the summer before its 2020-2021 regular season began, the National Football League decided that it would move forward with its season with Covid regulations in place. During this season, the National Football League experienced an economic loss by playing the season's entirety without the financial gain of selling tickets (Brandt 2021). This economic loss created a unique problem that each team had to face going into the 2021-2022 season. For the first time since the salary cap was created in 1994, it would be a smaller number than it was in the previous year (Tyler 2017).

The main goal of this thesis is to understand the financial implications of the Covid-19 through team performance. This thesis finds that during the 2021 season there is not a statistically significant correlation between team success and specific financial metrics for organizations that experienced a year with a lower salary cap.

## II. History

### The Salary Cap

In the National Football League, the salary cap governs how much teams can spend on players, significantly influencing how much players are financially compensated. The total amount of the salaries must be under the allotted amount that teams are allowed to spend (Keefer 2016). This differs from other sports leagues, like the National Basketball League and Major

League Baseball, where teams can exceed this spending limit through the payment of an excess tax (Keefer 2016). The total amount of money is calculated through a breakdown of the previous year's financial revenue split amongst each team. On an individual level, a player's cap value is broken down into the sum of his base salary, performance incentives, and their upfront signing bonus pro-rated over the length of their contract. With a set salary cap, the NFL contract structuring is a crucial process that is overseen by an entire department of most organizations.

### Player Contracts

The athletes in the National Football league are premier athletes at their sport. Each starting player has the position that only 32 other individuals in the entire world hold. Because the National Football League is one of the most commercially successful enterprises in modern entertainment, its players are compensated at a high level. A typical contract consists of a base salary, bonus for being on the roster, optional workout bonuses, and incentive and compensation escalators (Shen 2014). For example, Darelle Revis, a former cornerback for the Tampa Bay Buccaneers organization, had a contract with \$16 million of annual salary, \$13 million base salary, \$1.5 million roster bonus and a \$1.5 million workout bonus (Shen 2014).

Contracts in the National Football League do not fully guarantee payment, providing teams with more flexibility and less long-term commitment. Players and organizations have the ability to negotiate how much of an upcoming contract is fully guaranteed, ensuring that they will receive that portion of the contract. Teams are able to manage the years that players receive their financial compensation by making their teams' roster decisions best suit the plans of the organization. For example, Tony Romo, the former quarterback of the Dallas Cowboys, had a contract that included a \$25 million signing bonus that is amortized over five years for salary cap purposes (Shen 2014). The other compensation amounts in his contract make it so his cap hit for



the 2013 season was only \$11.8 million before increasing to \$21.8 million in 2014 and \$25.3 million in 2015 (Shen 2014). This cap management allows the team to keep the team surrounding Romo the same in 2013 before his salary becomes a larger percentage of the team's available cap space down the road. Keeping players from searching for larger contracts elsewhere due to Romo taking up a significant amount of the available money.

### Allocation of Salary Cap

The National Football League allows for the spending of players through multiple avenues. Each year there is a drafting of eligible players who wish to gain employment by one of the 32 organizations. The order is predetermined based on an inverse ranking of the previous year's standings (Hendricks et al. 2003). Through a seven-round process, each team is allocated a pick per round to select a player that they wish to sign to a contract and have as a member of their team (Keefer 2016). Additionally, teams can be given compensatory picks. These picks are allotted drafting slots that are in place to make up for losses during free agency (Duquette et al. 2002). The National Football League also allows for the trading of drafting picks for any combination of players and draft picks (Keefer 2016). This ability allows for teams to select multiple players in any given round of the draft. In 2011, the manner in which drafted players were paid changed due to a collective bargaining agreement between the National Football League and the NFL Players Association (Keefer and Andrew 2016). Before the new agreement, players were free to negotiate and set wages that they could agree upon with their new team. Now, players receive a percentage of a set rookie compensation pool, a number based on their position of selection (Keefer and Andrew 2016). Players selected in the first and second round sign contracts that are four years long, with a fifth-year option that the team can exercise for first

round players only. Finally, drafted player salaries are restricted to a 25% growth in their second season, further limiting the financial compensation of drafted players (Keefer and Andrew 2016).

The second manner of cap allocation is through the free agency process. This process, achieved through years of legal litigation and player advocacy, allows for players to choose where they negotiate their next contract (Backman 2002). An unrestricted free agent is a player whose contract expires after their first four years in the league. This allows players to negotiate and sign a future contract with any team in the league if the team has room to fit the player in under its cap total. The NFL does provide teams with a tool to prevent their franchise or crucial players from leaving their teams for better markets: the franchise and transition tag (Backman 2022). After choosing the player that they want to franchise tag, the team must pay the player equal to the average of the five highest salaries at that position or 120% of their previous season's salary (Backman 2002). Alternatively, the transition tag offers players the same financial options with a caveat. The player under the transition tag also has the ability to negotiate with other teams; the current team does get the first chance to match other teams' offers and can gain compensation if they elect to allow the player to sign with another team (Backman 2002).

Before a player reaches free agency status, they can either extend their current contract before its conclusion or can enter free agency and sign a new contract with that same team or any other team. Another way a player can achieve free agency status is by being released from their current organization. If a player has more than four years in the league, they are considered a "veteran" and have the ability to sign with any team if no team in the league wants to pick up their current contract (Shen 2014). When choosing whether or not to release a player the financial compensation still owed can be a major factor. The money still owed to players not on a team is considered dead cap money. For salary cap saving purposes, signing bonuses are

amortized over the time of the contract while other payments are charged to that season salary cap percentage (Shen 2014). If a player is released after June 1st, then their dead cap hit can be spread out over two years, allowing for the team to take on less of a financial hit (Shen 2014). This dead money will count towards a specific year's cap amount making it so that the team will have less capital to sign players that can participate in their season as they are still compensating a player who is no longer part of their organization.

### [Pandemic Revenue](#)

The National Football League had been on a steady rise with revenues growing over the past fifteen years. The National Football League, like many other professional sports leagues, was put on notice when multiple leagues canceled or postponed their regularly scheduled seasons due to Covid-19. The National Football League had just ended their season in March and therefore had the privilege of time to make their choice for the 2021 season. The NFL chose to continue its season as scheduled with increased testing of players and coaches. The attendance was left up to the individual teams and the regulations in their own locations. The season went on with a 92% drop in attendance, representing a fairly significant portion of traditional revenue (“Another Covid 2021 By-Product”). The National Football League was still able to handle these unfortunate circumstances due to media coverage and contracts already in place. Due to media contracts alone, the National Football League was set to approach \$10 billion with a full season completed (Dixon 2020). This looming incentive to complete a season and mitigate further loss of revenue led to a season that was completed in its entirety with all games meeting their contractual broadcasting obligations.

## Pandemic Free Agency

In interviews with general managers in the National Football League and analysis of the offseason, moves with a clear purpose can be understood. During the 2020 offseason, teams had to make economic more purposeful decisions surrounding players before they were able to sign additional free agents and manage their cap space. Just after the season had concluded 13 teams were over the cap and the average team had only \$8.8 million in cap space (Beaton et al. 2021). Leading up to the beginning of free agency that number was closer to \$19.3 million with teams freeing up over \$300 million in cap space through releasing and restructuring contracts (Beaton et al. 2021). When asked, the general manager of the Jacksonville Jaguars stated that there was going to be a wide range of players available to sign during free agency (Beaton et al. 2021).

A reinforcing statistic for the number of players available can be described by the number of players that were cut. The 89 players that were released was more than had been over any non-lockout season in the past fifteen years (Beaton et al. 2021). This measured and purposeful cutting and restructuring allowed for teams to maintain the performance on the field through the removal of formerly luxury or expensive players that were not deemed as paramount towards team success. This marked one of the most unique scenarios in the National Football League where teams had to first remove players that weren't perfect fits before optimizing their rosters for the upcoming season.

### III. Literature Review

The effects COVID-19 has had on the way business is handled reaches far into all aspects of life. This is no different with the operation of professional sports leagues. The pandemic created a scenario where the financial norms of operating a social business, like sports leagues,

changed. Through analysis of revenue generation for these leagues, Ehrlich et al. (2020) found that the estimated losses due to the Covid-19 Pandemic in the National Football League was \$2.46 billion in revenue.<sup>1</sup> The allocation of assets under the salary cap is a field of research that has many unique areas of current research. As different collective bargaining agreements have shifted toward the outlook of the league's salary cap and player rights, the literature has seen many shifts in its areas of importance. Zimmer (2016) studied the impact of NFL salary cap concentration on success of teams, examining different metrics of success of teams in the National Football League between 2000 and 2009. The metrics chosen were win-loss ratio, point differential, and offensive yard ranking. This research found that teams that spend the maximum allowable amount of their salary cap have a greater probability of success.

Additionally, Zimmer found that the quarterback's percentage of salary cap was not statistically significant in its effects on the winning percentage and point differential and only was significant for the offensive yard rank (Zimmer 2016). This study, although more focused on the saturation of a given position on a team, provided insight into the fact that, in this model, having an elite quarterback is important and that having a few elite players is better than having many good players (Zimmer 2016).

Previous research on the evaluation of rookie players who represent a financial obligation to teams before ever setting foot on the field are an important aspect of the salary cap. After the collective bargaining regulations set in 2011, the payment for rookie players shifted to a rigid payment structure. Through comparing how much a drafted player is paid compared to his performance under the rookie contract, a model for estimating value of drafted players was created. To value a player's career the study used Pro Football Reference's Weighted career

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<sup>1</sup> This number was then estimated to be closer to 3-4 billion in loss as estimated by sports consultants (*Sports Business Journal* 2021).

approximate value metric. This metric assigned players a number between players above 100 being considered “Hall of Fame” worth. Taking this data and cross referencing it with the average position of players between 1994 - 2003 created a graph of player drafting position compared to career success. The results of Duquette’s analysis show that high round draft picks are overvalued and the difference between rounds in the draft shows a significant financial drop off with little performance drop off (Duquette et al. 2020). Duquette’s research shows that as performance declines in a smooth trajectory and as the draft progresses, the financial compensation declines at a notched trajectory (Duquette et al. 2020). This ratio finds that the peak of performance cost is found in the third round of the NFL draft as players' contracts are much smaller than those of first round p (Duquette et al. 2020). Analyzing drafting positions provides an important basis for the analysis of how many drafted players are on a given team and their given performance relative to their salary cap hit.

#### IV. Data

The National Football League has become one of the most statistically analyzed businesses in the world. The sport itself has advanced metrics in statistical categories surrounding athletic performance and achievement. This is no different with the financial metrics involved in operating a team. This information is publicly available and is published on a team and league wide level. This level of transparency allows for increased analysis and constant improvements in official data as reports are published and confirmed on a 24-hour time frame every single day of the year. *Pro Football Reference* is one of the leaders in statistical analysis of the National Football League. It has been referenced by published news sources like *The New York Times*, *Bloomberg BusinessWeek*, and *Forbes*. *Spotrac* is a similar database that gathers its

information from publicly available reports and uses league standard formulas to allow for any desired adjustment or modeling.

I obtained data on both financial and statistical metrics, for each team in the National Football League from both *Spotrac* and *Pro Football Reference* for the 2018 - 2021 seasons. My outcome variables are different measures of team success. The first variable of performance is the winning percentage<sup>2</sup> of a given team for an entire season. This metric is important because as the National Football League changes its rules for any given season, this metric provides a baseline of equal comparison. The second measure of performance is the point differential of a given team in any given season. The point differential is the difference between the amount of points scored by a given team and the amount of points allowed. This number is then added up over a season to provide a total point differential for a team. A large positive point differential shows a successful statistical season. But a negative large point differential shows unsuccessful seasons with losses (Zimmer 2016). This metric can be seen as a way to calculate the magnitude of a team's success more than just the wins and losses.

The third measure of performance is the team offensive ranking. This metric compares the scoring, offensive yards, and penalties. This metric accounts for any changes in the rules and assigned a number rank between 1 and 32 can mitigate any yearly bias between performance. A lower number means a more successful offensive unit over an entire regular season.

These variables represent the key dependent variables for the analysis of team performance. These variables can also further be categorized based on their specific relevance to the National Football League.

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<sup>2</sup> Also described as Win – Loss ratio

Draft picks represent the amount of selections that a given team has in an individual draft. These picks can be exchanged through trade and league allocation and helps explain how many incoming players will be accounted for in team's rookie payment pool.

The percentage variables help further explain how much of the total spending is broken down. The percentage of offensive spending represents the total percentage of the cap that is being allocated to players that are on offense. The Quarterback being one of the most important positions in the National Football League historically has taken up a large percentage of the cap unless they are still within their league mandated rookie contract.

The salary cap metrics are represented by the raw numbers for each team over a season. The cap space variable describes the total cap dollars available to a team at the end of their league year after signing players, paying for dead cap hits, restructuring contracts, releasing players from their employment, and other in-house adjustments. The rookie contract average represents the average money owed to players in their rookie year. Table 1 shows the summary statistics for the data set used in the regression analysis.

## V. Estimation Methodology and Results

To estimate the relationship between the Win-Loss ratio<sup>3</sup> and financial metrics through the 2018-2021 National Football League regular season, I estimate the following regression equation.

$$\begin{aligned}
 wl_{it} = & \beta_0 + \beta_1(CAPSPACE_{it}/1,000,000) + \beta_2 OFFENSIVE \% CAP_{it} \\
 & + \beta_3 (QBDollars_{it}/1,000,000) + \beta_4 QB \% CAP_{it} + \beta_5 (ROOKIE_{it}/1,000,000) \\
 & + \beta_6 Y2019 + \beta_7 Y2020 + \beta_8 Y2021 + \beta_9 Draft + y_{it} + \varepsilon_{it}
 \end{aligned}$$

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<sup>3</sup> For other regressions Point differential & Team Offense Rank were used



## 2018-2021

The regression model in Table 2 Column 1 represents the impact financial metrics have in regards to the win loss percentage. Over the four seasons of interest, it is particularly apparent that two metrics (Cap Space and Offensive Percent of Cap) are statistically significant both at the 95% confidence interval. The variables Cap Space and Offensive Percent of Cap are both impactful in team success at some level over the four seasons analyzed. When breaking down these results, there is an observed negative coefficient regarding Cap Space. For every one unit increase of Cap Space/1m there is a -.47 percentage points change in the win loss percentage.

In a literal application, the above result makes sense. The more money the team does not use, the less money it is paying its current players. This means that the team is not going out and paying star players, signing as many free agents as it can, and utilizing its free cap space to better the team for its upcoming season. Translating that over to the Win Loss percentage, this application shows that teams are better off spending all the available cap they have regarding their win loss record. The Offensive Percentage of Cap is another metric of significance that has realistic application. For every one percentage point increase in Offensive Percent of Cap there is a .468 percentage point increase in the win loss percentage. The positive coefficient shows that the more money spent on the offensive positions the greater increase in win loss percentage. This analysis makes sense as the main way that points are scored is through the offense. The only way to win games in the National Football League is to outscore your opponent. As rules have changed supporting offensive players and the league focuses on making football a more enticing offensive spectacle these results align with league practices.

Table 3 Column 1 represents the impact that financial metrics have in regards to point differential. When looking at the results in Column 1 the Offensive Percent of Cap is statistically significant. Furthermore, it is statistically significant at the 99% confidence interval. For every one percentage point increase in Offensive Percent of the Cap, there is a 429 point increase in point differential over the course of a regular season. Point differential represents the difference between points scored and allowed; the Offensive Percentage of Cap is a key part of building a successful offense. Spending more on offense leads to more points being scored and in order to have a positive point differential the offense must be scoring at a high volume. Utilizing Cap Space to acquire or bolster offensive power has positive effects on this success metric as it clearly is focused on scoring more than points conceded.

Table 4 Column 1 represents the impact that financial metrics have in regards to the team's offensive rank. The offensive percent of the cap, again, is statistically significant at the 95% confidence interval. For every one percentage point increase in Offensive Percentage of the Cap there is a -30.3 point decrease in ranking. As the number 1 offense is considered lower, this statistic shows that increasing offensive percentage has a positive impact on the team's offensive ranking.

After running the initial regression analysis for the three different regressions, comparisons can be drawn between the three tables. When looking at Column 1, Offensive Percentage of Cap is statistically significant for all tables. As all three dependent variables are focused around results that are heavily impacted by the offense, these results are not surprising. Offense is how games are won, points are scored, and impact the rank given to an offense at the end of the season. In accordance with previous analysis, this model also finds that quarterback payment was statistically insignificant for win-loss percentage.

The one variable that was only significant for win-loss percentage and none of the others was Cap Space. This is understandable, as win-loss is the most general ranking of success, meaning that general spending is more of a factor and is more focused only on a team winning or losing. At the most basic level, Cap Space being statistically significant shows that using up all available Cap Space means there are more players on the field that are being paid. Competent management of a professional organization can use all of its Cap Space to sign the best 54 players putting forth the best team possible.

#### [Pandemic Era NFL \(2020-2021\)](#)

The regression in Table 2 column 1 shows the statistically significant variables Offensive Percentage of Cap and Cap Space interacted with the year 2021. Interaction variables for (*OFFENSIVE % CAP \* Y2021*) and (*CAPSPACE \* Y2021*) better capture the effects that can be related to the 2021-2022 season because the season was the one that was financially impacted by the COVID-19 pandemic. Although they may not be statistically significant, important information can still be extrapolated from this information. During the 2021 season, for every one unit increase of Cap Space/1m, there is a -.477 percentage points change in the win loss percentage. For every one percentage point increase in Offensive Percent of Cap, there is a .273 percentage point increase in the win loss percentage.

Table 3 Column 2 shows Offensive percentage of Cap interacted with the year 2021, as that was the only variable of statistical significance. In this further analysis the newly interacted variable is not statistically significant. For every one percentage point increase in Offensive percentage of the cap there is a 177-point increase in point differential. This may not be statistically significant yet it is a coefficient that is large enough to warrant inclusion.

Similarly, in table 4 Column 2 Offensive percentage of Cap is interacted with the year 2021. The results are statistically insignificant with the effect in 2021 being a smaller coefficient than before. For every one percentage point increase in Offensive Percentage of the cap there is a -7.09 point decrease in ranking.

The data during the Pandemic Era shows that the previous regressions found insignificant results on overall team success. In this model during the 2021 season the percentage that teams spent on their offense did not have any unique impact on team success. This is different from what was theorized, that the relationship between financial metrics and team success changed during the pandemic season. These results observed a tentative change given the magnitude in the change in the coefficients; this could be an area of interest. For all three regressions ran with interacted variables there were only 32 observations representing each team in 2021. From what was initially theorized to know more clarity can be drawn from what did not change during the pandemic era. These results tell a story that these chosen variables' relationship with team success over the seasons between 2018 - 2021 were not changed in a significant way due to the COVID-19 pandemic.

## VI. Conclusion

This thesis attempts to examine the relationship between financial metrics and team success and see if anything changed during the 2021 season.

After controlling for a variety of factors such as draft picks, offensive spending, positional spending, rookie spending, and more I can conclude that the financial metrics shown did not prove a statistically significant impact on team success when isolated during the 2021 season.

When looking at the results over the four seasons a statistical significance is found in the percentage of cap space spent on offensive players for all three dependent variables but when applied to just the 2021 season where there was a decrease in the cap space the results were statistically insignificant. It is important to note that this analysis was limited in its scope as there was a single season where the salary cap dipped before returning to its previous incremental increase.

For future research, as more data is collected down the line a larger sample size of pre and post Covid seasons can be acquired. This research surrounding the effects of a decreased salary cap due to COVID are still going to face limitations around data collection. The National Football League only conducted one full league cycle of draft, season, and free agency before it was able to return to normal league operation. Using a larger sample of seasons after the 2020-2021 season would provide a larger range of observation and could attempt to capture any of the long-term trends caused by the very unique COVID-19 year.

Another extension of this analysis could be analyzing shifts in behavior of national football league front offices in the lead up to the 2020-2021 free agency period. Looking at metrics like players cut, salary saved, and contracts adjusted could provide insights into the shift in team management to compensate for the surprise decrease in salary cap space. This could provide a clearer picture of the financial moves that are done throughout the season leading into the most critical time of salary cap allocation, free agency. Analyzing changes after this year before and after could lead to additional information on long term changes in player acquisition brought on by the pandemic.

The National Football League is one of the largest sports leagues in North America. It has 32 unique organizations in 22 different states. Utilizing data from these teams, I can conclude

that there is insufficient evidence of different financial metrics impacting the success of teams during the 2020-2021 season.

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## Appendix

Table 1

Descriptive Statistics of All Variables

	<b>Key Variables</b>				
	(1)	(2)	(3)	(4)	(5)
VARIABLES	N	mean	sd	min	max
<i>Dependent Variables</i>					
Year	128	2,020	1.122	2018	2021
Win/Loss Ratio	128	0.500	0.190	0.0630	0.875
Point Differential	128	0	103.5	-214	249
Offense Rank	128	16.50	9.269	1	32
<i>Independent Variables</i>					
Draft Picks	128	7.984	1.964	3	15
QB % of Adjusted Cap	128	0.0902	0.0481	0.0118	0.197
Offensive % Cap	128	0.343	0.0854	0.171	0.523
Rookie Contract (avg)/1m	128	11.01	4.016	3.430	23.02
Cap Space/1m	128	9.819	10.17	-2.821	54.16
QB'20 Cap Dollars/1m	128	17.77	9.514	2.180	47.17
RB % of Adjusted Cap	128	0.0340	0.0187	0.00320	0.0991
Number of teams	32	32	32	32	32

Note: /1m = (variable)/(1,000,000)

Table 2

## Fixed Effects Regression Results - Win/Loss Ratio

	(1)	(2)
VARIABLES	wl	wl
Cap Space/1m	-0.00472** (0.00201)	-0.00453* (0.00223)
Draft Picks	-0.00439 (0.0116)	-0.00451 (0.0118)
Offensive % Cap	0.468** (0.223)	0.438* (0.251)
QB % of Adjusted Cap	-0.379 (0.401)	-0.430 (0.449)
RB % of Adjusted Cap	0.0661 (1.122)	0.00382 (1.150)
Rookie Contract (avg)/1m	0.00334 (0.00621)	0.00345 (0.00623)
y2019	0.0101 (0.0408)	0.00807 (0.0410)
y2020	-0.0166 (0.0556)	-0.0179 (0.0561)
y2021	-0.0351 (0.0594)	-0.126 (0.200)
var21offensivecap100		0.00273 (0.00487)
var2021capSPACE1m		-0.000477 (0.00424)
Constant	0.427*** (0.111)	0.443*** (0.132)
Observations	128	128
R-squared	0.117	0.121
Number of team1	32	32

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Table 3

## Fixed Effects Regression Results - Point Differential

	(1)	(2)
VARIABLES	pointdifferential	pointdifferential
Cap Space/1m	-1.608 (1.017)	-1.527 (1.011)
Draft Picks	1.390 (5.849)	1.332 (5.889)
Offensive % Cap	429.2*** (148.7)	408.2** (151.9)
QB % of Adjusted Cap	-240.1 (219.0)	-274.1 (232.5)
RB % of Adjusted Cap	55.97 (535.6)	17.00 (544.0)
Rookie Contract (avg)/1m	-1.619 (3.309)	-1.567 (3.317)
y2019	5.852 (20.20)	4.632 (20.03)
y2020	-2.350 (26.73)	-3.104 (26.62)
y2021	-4.062 (31.62)	-65.01 (89.58)
var21offensivecap100		1.776 (2.291)
Constant	-104.7 (75.12)	-93.31 (78.84)
Observations	128	128
R-squared	0.182	0.187
Number of teams	32	32

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Table 4

## Fixed Effects Regression Results - Team Offense Rank

	(1)	(2)
VARIABLES	teamoffenserank	teamoffenserank
Cap Space/1m	0.107 (0.0968)	0.104 (0.0990)
Draft Picks	-0.496 (0.500)	-0.494 (0.501)
Offensive % Cap	-30.35** (13.37)	-29.51** (13.84)
QB % of Adjusted Cap	6.643 (18.63)	8.000 (19.39)
RB % of Adjusted Cap	17.37 (48.66)	18.93 (48.86)
Rookie Contract (avg)/1m	0.0620 (0.273)	0.0600 (0.275)
y2019	-0.131 (1.800)	-0.0822 (1.794)
y2020	0.477 (2.217)	0.507 (2.214)
y2021	0.571 (2.454)	3.004 (6.450)
var21offensivecap100		-0.0709 (0.180)
Constant	27.71*** (5.199)	27.26*** (5.379)
Observations	128	128
R-squared	0.120	0.121
Number of team1	32	32

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1