

What it takes to win in the ELF

Sergi Margalef Comallonga

Introduction

The European League of Football is a professional American football league based in Europe. In 2024 we will see the fourth season of the league with seventeen teams from nine different countries. This project aims to analyse traditional metrics, using a similar approach to *Moneyball*, from the first three seasons to see what it takes to win in this league. Before expanding on the methodology used and results I will do a quick recap of the first three seasons.

The first season of the newly formed ELF started in June of 2021. In this first season, there were 8 teams and each team played ten regular season games. The MVP was Madre London from the Cologne Centurions. The first Championship Game was won by the Frankfurt Galaxy with a final result of 30-32 against the Hamburg Sea Devils. The game was played in Düsseldorf with a game attendance of 22.000 fans.

In the second season of the ELF, the league expanded to twelve games and two more regular season games, with a total of twelve. The MVP of the season was Sean Shelton from the Tirol Raiders. In this season the new team, Vienna Vikings, won the finals against the previous year's finalist, the Hamburg Sea Devils 27-15. The Championship MVP trophy was won by the WR Kimi Linnainmaa.

The most recent season, 2023, had seventeen teams. Unfortunately, Leipzig Kings were removed from the league after week 6. Rhein Fire's QB, Jadrian Clark won the MVP of the season and with an undefeated record Rhein Fire won all the games including the Championship Game against Stuttgart Surge. With a final result of 34-53, the game had an attendance of 31.500 people. In the next section, I will briefly explain the methodology of the analyses.

Methodology

The stats used for this analysis come from SportsMetrics (<https://www.sportsmetrics.football/>). With the regular season stats of all the teams, there are 36 observations (I have excluded Leipzig Kings for the 2023 season). The stats used for the analysis are traditional ones, such as TD, Yards, etc.

I have calculated the win percentage for each team to standardise the results, because during the first season each team played ten regular season games, but in the two following it was twelve games. Another stat that I have calculated is TD differential and Points differential. The simple analysis focuses on how many TDs and Points differential your team should have to make it to the playoffs. To see the results I have plotted the variables and run a linear regression analysis.

The second part of the analysis comes from analysing where the points come from. For that I have used rushing and passing yards and rushing and passing TDs. I have looked at where the offense points come from using these variables and also to see where the points received (defense) come from. To see this I have run two linear regression models, one for offense and one for defense.

Results

First, we will see the results of the plots. In Figure 1 we can see the win percentage on the Y axes and the points difference on the X axes. The dark dots are the teams that didn't make it to the playoffs, and the blue ones are the ones that made it to the playoffs.

Figure1

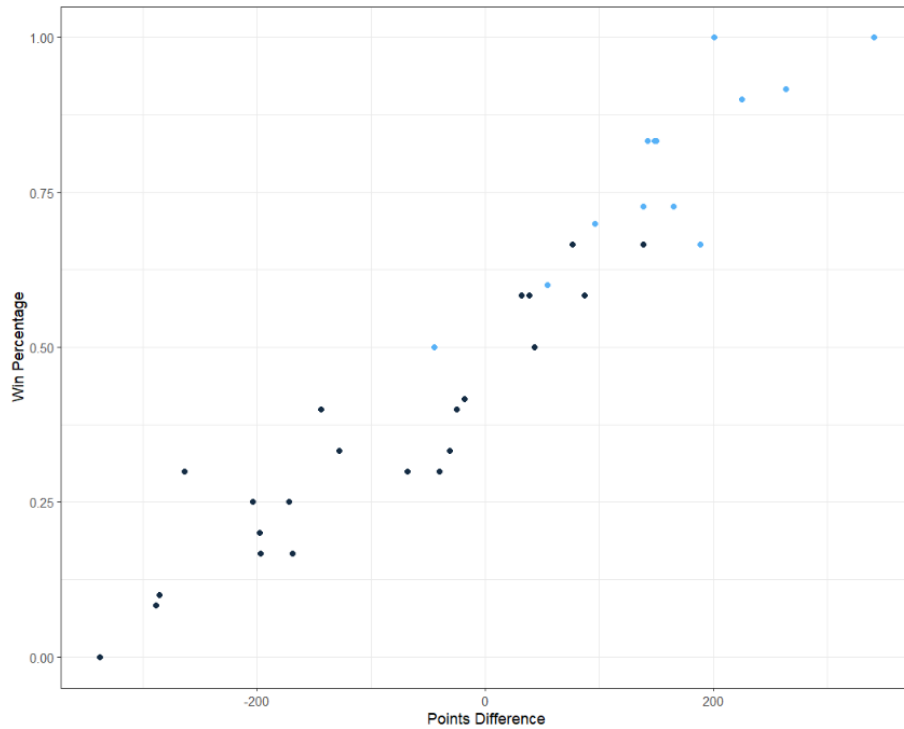
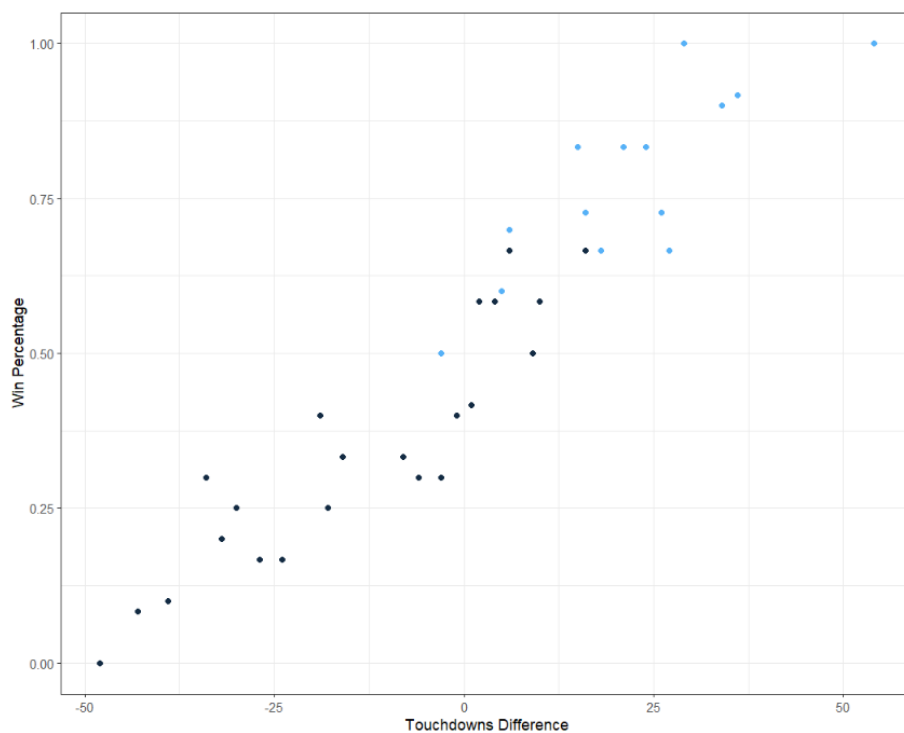


Figure 2



In Figure 2 we can see the same but instead of the points difference, we have a TDs difference. From the plots, we can deduce that the correlation among these variables is high. In fact, for Figure 1 the correlation is 0.956, and for Figure 2 0.945.

One surprising observation is that there is a team with a 50%-win percentage that made it to the playoffs, that team is the 2021 Cologne Centurions. However, we can see that it is not the most normal thing to make it to the playoffs with a 50%-win percentage. Looking at the other observations we can see that with a 67%-win percentage, you have a good chance to make it to the playoffs. With the following linear regressions, we will see how many points difference and TDs difference you should get to have a 67%-win percentage.

Table 1

Regression Win Percentage vs. Points Difference		Regression Win Percentage vs. Touchdowns Difference	
<i>Dependent variable:</i>		<i>Dependent variable:</i>	
Win Percentage		Win Percentage	
Points Difference	0.002*** (0.0001)	Touchdowns Difference	0.011*** (0.001)
Intercept	0.511*** (0.014)	Intercept	0.511*** (0.015)
Observations	36	Observations	36
R ²	0.914	R ²	0.894
Adjusted R ²	0.912	Adjusted R ²	0.890
Residual Std. Error	0.082 (df = 34)	Residual Std. Error	0.091 (df = 34)
F Statistic	361.661*** (df = 1; 34)	F Statistic	285.557*** (df = 1; 34)
<i>Note:</i> *p<0.1; **p<0.05; ***p<0.01		<i>Note:</i> *p<0.1; **p<0.05; ***p<0.01	

In Table 1 we can see the results of the two linear regression models. For the Points difference model, the resulting equation is:

$$\text{Win percentage} = 0.5112 + 0.001512 * \text{Points Difference}$$

The Touchdowns equation is:

$$\text{Win percentage} = 0.511190 + 0.010630 * \text{Touchdowns Difference}$$

If we want to get a 0.67 win percentage to make it to the playoffs according to these models we will need: at least a 105 points difference and 15 touchdowns difference. The next part of the analysis is to see where these points come from (yards and touchdowns) for the offense side and the defense side.

In Table 2 we can see the results of the offense linear regression. We can see that yards, rushing and passing, are not statistically significant. Touchdowns, on the other hand, are statistically significant, and from the coefficients, we can see that passing touchdowns have a slightly higher impact than rushing touchdowns.

Table 2

Regression Offense Points	
	<i>Dependent variable:</i>
	Offense Points
Rushing Yards	0.013 (0.023)
Passing Yards	0.004 (0.013)
Rushing Touchdowns	6.122*** (1.358)
Passing Touchdowns	6.969*** (0.914)
Intercept	29.921 (25.620)
Observations	36
R ²	0.934
Adjusted R ²	0.925
Residual Std. Error	26.725 (df = 31)
F Statistic	109.100*** (df = 4; 31)
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01

In Table 3 we can see the results of where the defenses receive points from. Same as offense, yards are not statistically significant but touchdowns are. In this case, we can see that the coefficient of rushing touchdowns is higher than passing ones. This means that teams that tend to receive more points do from rushing touchdowns.

Table 3

Regression Defense Points	
	<i>Dependent variable:</i>
	Defense Points
Rushing Yards	-0.017 (0.012)
Passing Yards	-0.005 (0.007)
Rushing Touchdowns	8.457*** (0.690)
Passing Touchdowns	7.254*** (0.527)
Intercept	53.759*** (16.714)
Observations	36
R ²	0.977
Adjusted R ²	0.974
Residual Std. Error	15.699 (df = 31)
F Statistic	331.089*** (df = 4; 31)
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01

Conclusion

This analysis has aimed to uncover the key metrics that contribute to winning in the European League of Football (ELF), following a Moneyball-inspired approach to assess the league's first three seasons. By examining traditional statistics such as touchdowns (TDs), yards, and point differentials, we have identified patterns and benchmarks that successful teams typically achieve to secure playoff spots.

Our findings indicate a strong correlation between win percentage and both points difference and touchdowns difference. Specifically, teams that achieve a points difference of at least 105 or a touchdowns difference of at least 15 tend to have a win percentage of around 67%, which significantly increases their chances of making the playoffs. This aligns with the observed high correlations of 0.956 and 0.945 for points difference and touchdowns difference, respectively, with win percentage.

Furthermore, our regression analyses reveal that while yardage (both rushing and passing) is not statistically significant in determining points, touchdowns are. For offensive performance, passing touchdowns have a slightly higher impact than rushing touchdowns. On the defensive side, the analysis shows that teams are more susceptible to losing when they allow more rushing touchdowns compared to passing touchdowns.

The implications of these findings are multifaceted for teams and coaches in the ELF. To enhance their chances of winning and reaching the playoffs, teams should focus on strategies that improve their touchdowns difference, with a particular emphasis on bolstering their defense against rushing touchdowns. This targeted approach can help teams prioritise their training and game strategies more effectively.

In conclusion, achieving a balanced and high-performing offense that prioritizes scoring touchdowns, alongside a robust defense that minimizes rushing touchdowns allowed, appears to be the winning formula in the ELF. These insights provide a clearer understanding of what it takes to succeed in the league and offer actionable guidance for teams aiming to elevate their competitive edge in future seasons.