

# The ‘Two for One’: A Significant Basketball Advantage

## David Rogers & Greg Immink

### Introduction

With just over 40 seconds left in the 3<sup>rd</sup> quarter, Jason Terry of the Dallas Mavericks frantically pushes the ball down court trying to get his teammates into position for a quick scoring opportunity. After a ball screen from Dirk Nowitzki, the veteran guard drives middle and slides a pass back to Dirk at the elbow for one of his patented, high arching jumpers. Swish. 0:32 seconds left. Now it is Miami’s turn. LeBron James holds the ball at the top of the key as the second tick off the clock—waiting for the right opportunity to attack. With the shot clock showing 10, he explodes right, leaving his defender flatfooted as he elevates high above the rim for an emphatic dunk. 0:17 seconds left. Slow to gather the ball after it goes through the cylinder, Jason Kidd passes the ball to Jason Terry who methodically walks the ball up the court in order to hold for the final shot. With 0:04 on the clock he drives right and knocks down a midrange pull-up jumper, leaving only enough time for a Mike Miller heave to end the quarter (which ultimately left his hands after the horn). Over the final 40 seconds of the quarter, Dallas outscored Miami 4-2. Through his game management, Jason Terry was able to optimize his teams scoring potential by utilizing the clock to his advantage.

End of quarter situations provide a unique opportunity for a team to create an advantage by manipulating game flow. Improving awareness in these situations may allow for a team to “steal” a few points or even a possession. This article attempts to understand how manipulating game flow to create a ‘two for one’ situation can be advantageous. As illustrated in the opening account, ‘two for one’ situations occur when a team is able to utilize the difference in time between the shot clock and game clock in order to guarantee an extra possession at the end of a quarter. There is an opportunity for a ‘two for one’ to occur at the end of every quarter. For the purposes of this study, the team which possesses the ball first will be referred to as the *initiating team* and consequently, the opposing team will be referred to as the *defending team*.

Game commentators often remark about a player creating a ‘two for one’ opportunity by properly managing the clock at the end of the quarter. But is the ‘two for one’ really an effective ploy? This question was raised while in a Coaching Basketball class at Michigan State University. David Rogers, a computer scientist at MSU, began to wonder if the real value of a ‘two for one’ could be found through an objective study of the numbers. He decided to see what type of data was available and enlisted the help of the class professor, Greg Immink, to add depth and basketball knowledge to the project.

Fortunately, play-by-play data dating back to the 1940’s was readily available on Basketball Reference<sup>1</sup>. Rogers and Immink were able to capture this data using a web scraper to gather the raw data from all National Basketball Association (NBA) league games played during the 2000-2001 through 2011-2012 seasons. From here, the decision was made to identify suitable criteria for ‘two for one’ situations. After several meetings, the researchers decided upon the criteria on the following page as a way to specifically determine a ‘two for one’ suitable for analysis.

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<sup>1</sup> See: [www.basketball-reference.com](http://www.basketball-reference.com)

## Criteria for Analysis of a 'Two for One'

1. *The initiating team must attempt a shot between 37.0 seconds and 30.0 seconds remaining in the quarter.*

Since the NBA uses a 24 second shot clock, a range between 37.0 and 30.0 seconds left on the game clock is suitable for taking the initial shot because it allows for a worthwhile possession at the end of the quarter. For example, if the initial shot is taken before 37.0 seconds, the defending team could “steal” the ‘two for one’ with a quick shot. Likewise, a shot taken with less than 30.0 seconds remaining in the quarter would not leave sufficient time for a valuable final possession at the end of the quarter.

2. *The initiating team must have exactly two possessions and the defending team must have exactly one possession.*

If the defending team is able to gain a second possession, the data is disqualified because a true ‘two for one’ situation is no longer present. (See exception to this rule: Criteria 3)

3. *All segments in which the defending team receives the ball with 3.5 seconds or less remaining on the game clock (following a ‘two for one’) will be counted as a two for one although it is technically a ‘two for two.’*

While the goal of the initiating team is to score with exactly no time left on the game clock, the initiating team often scores with a couple of seconds remaining leaving the defending team only a few seconds to go the length of the court. It was determined that any possession under 3.5 seconds to be too little time to be valuable.<sup>2</sup> This criterion was made to include true ‘two for ones’ in which the defending team attempted a full court shot at the end of the quarter.

4. *Only end of quarter segments from the 1st, 2nd and 3rd quarters are analyzed.*

Due to the complexity of the final minutes of the 4<sup>th</sup> quarter and overtimes (Timeouts, fouls, etc.) these segments were deemed not suitable for analysis.

5. *Segments that include events such as flagrant, technical, or clear path fouls, and illegal defense were disqualified.*

These skew points scored (extra free-throws) while not being indicative of a true possession.

6. *Segments that include a kicked ball violation or jump ball are disqualified.*

These violations reset the shot clock and can cause a change of possession.

7. *Segments that include offensive rebounds are disqualified.*

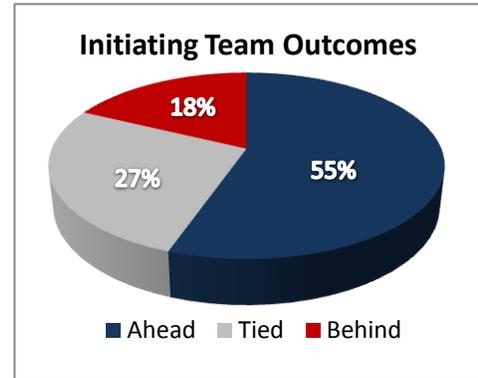
Offensive rebounds reset the shot clock, giving the offensive team a new chance at an offensive possession with a different shot clock to game clock differential.

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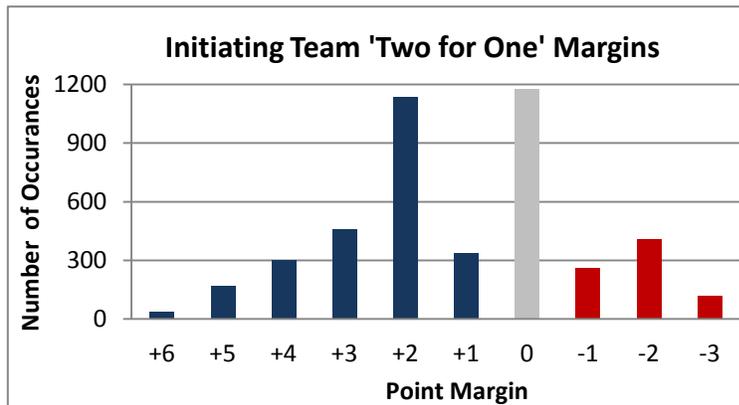
<sup>2</sup> This stems from the “Tyus Edney Rule” coined after a 1995 NCAA tournament second round game, in which he traveled the length of the floor in 4.8 seconds and was able to execute a layup.

## Analysis of a 'Two for One'

Data from 15,310 regular season and playoff games were filtered according to the above, criteria resulting in 4,455 'two for ones.' In 55.4% of the 'two for ones,' the initiating team came out ahead. Curiously, only 17.8% of the time the initiating team ended up behind. Thus, the remainder of the time, 26.9%, the 'two for one' is considered a tie because both teams scored equal amounts of points to end the quarter. Overall, in a whopping 82.0% of the 'two for ones' identified; the initiating team ended the segment either tied or ahead!



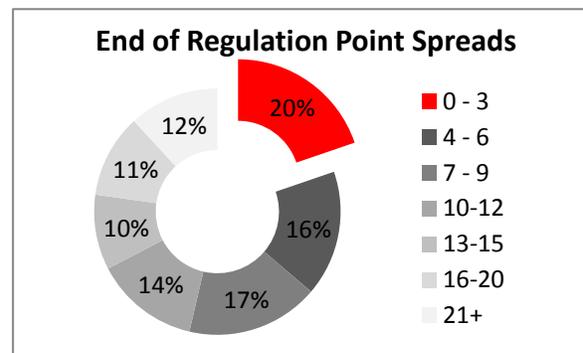
The margins of victory and defeat of the initiating team reveal some unsurprising trends. When the initiating team came out ahead they had a point differential of +2.57 points on average. This high margin can be attributed to the initiating team holding the defending team scoreless 69% of the time. This signifies the importance of playing solid defense in a 'two for one' situation. On



the other hand, when the initiating team was outscored, they lost by an average of 1.82 points. This number is strikingly close to two which makes one think the initiating team was unable to score. In fact, in 78.8% of the situations the initiating team lost the 'two for one' they failed to score a field goal. Yet, it is important to remember that the initiating team wins 55.4% of the time and only

loses 17.9% of the time. Thus, the average point margin of a 'two for one' situation for the initiating team is an exceptional +1.10 point advantage.

Armed with this information, it would be difficult for any coach to disregard any prospective 'two for one' situation. By taking advantage of every 'two for one' in each of the first three quarters, a team can create a 3.3 point advantage during the game. While 3.3 points might not seem like a lot, in the NBA, 19.74% of all games during the 11 seasons studied ended regulation with a scoring margin of 3 points or less. Essentially, this means that during a teams' 82 game schedule, the outcomes of 16 games are subject to change based upon the impact of the 'two for one' advantage.



## Supplementary 'Two for One' Analysis

In analyzing the data, some other statistics jumped out as well. It is safe to say defending teams were more efficient with their possessions in a 'two for one' situation than during typical NBA

game play. They shot an astounding 52.6% from the field, whereas the league average during the 2011-2012 regular season was a modest 44.8%.<sup>3</sup> In addition, defending teams had a turnover

Statistical Breakdown (Aggregated Numbers)		
Stat	Initiating Team	Defending Team
PTS	9889	4985
FG %	50.50%	52.60%
3PT %	43.00%	45.10%
FT %	89.20%	89.50%
FGM	3723	1821
FGA	7377	3480
3PTM	912	427
3PTA	2122	946
FTM	1531	896
FTA	1717	1001
AST	2062	1054
Turnovers	371*	536
Possessions	8910	4455

\*This number is skewed due to only counting the attempted shot on the initializing possession. It is unknown how many attempted 'two for ones' in resulted in a turnover on the initial possession.

that yielded an above average success rate. Instead the results showed an inconsistent pattern of success across the seven second time span. This means, teams should be looking to shoot within the range of 30 to 37 seconds left in the quarter, but at no specific time.

## Conclusion

Based on these findings, it is safe to say that veteran guard Jason Terry made a great decision in getting his team in to a 'two for one' situation. In this particular case, the two points that were gained by Dallas during the 3<sup>rd</sup> quarter 'two for one' turned out to be the margin of victory in a very important Game 2 of the 2011 NBA Finals. NBA coaches can be confident in organizing 'two for one' situations because they allow teams to optimize scoring opportunities and ultimately optimize their chances for success. Due to the significant advantage that is presented by a 'two for one,' a coach should be more willing to use a timeout (either a full or a 20 second) when possession is gained between 38 and 45 seconds in order to draw up a quick play. This tactical move will ensure a 'two for one' and its significant advantage for their team.

ratio<sup>4</sup> of 9.73 which is extremely favorable to the league median team, Memphis, which had a ratio of 23.9 during the 2011-2012 regular season.<sup>5</sup>

Although the defending team is extremely efficient, they are limited by the lone possession they receive. The value of an extra possession outweighs the high rate of efficiency exhibited by the defending team. Simply put, two possessions are better than one!

## When to Initiate the 'Two for One'

The data overwhelmingly shows the initiating team should take the 'two for one' at every opportunity. Understanding this, it is natural to ask if there is an optimal time at which the 'two for one' should be initiated. The 4,455 'two for ones' were further sorted into categories based on the time the initial shot was taken. Unfortunately, no conclusive evidence pointed to a particular span of time

<sup>3</sup> Found by averaging FGM and FGA for each team during the 2011-12 regular season.

See: <http://sports.yahoo.com/nba/stats/byteam>

<sup>4</sup> Turnover ratio as defined by John Hollinger, "The percentage of a team's possessions that end in a turnover." Turnover Ratio = (Turnover x 100) divided by [(FGA + (FTA x 0.44) + Assists + Turnovers]"

<sup>5</sup> See: [http://espn.go.com/nba/hollinger/teamstats/\\_/year/2012](http://espn.go.com/nba/hollinger/teamstats/_/year/2012)