Opening a New Door: Constructing the Value of Winning Index for the National Basketball Association

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Abstract

Competitive culture represents one of the most prominent contributors to the success of sport organizations that value meritocracy and winning at all costs. In the case of the National Basketball Association (NBA), stakeholders, including the league, teams, players, and fans, all play essential roles in creating team franchise values. The purpose of this study is to explore the extent to which winning contributes to the economic value of NBA franchises while controlling for market heterogeneity, star player influence, and unobservable factors such as year fixed effects. By leveraging publicly available panel data consisting of the NBA seasons from 2011-2012 to 2018-2019, the paper develops a value of winning (VOW) index based on NBA team performance. Based on the results of econometric panel analysis, winning has a significant, positive effect on a team's franchise value. The findings indicated that every percentage increase in an NBA team's winning percentage on average leads to approximately $196 million of an increase in team franchise values. Further, we find that the added value of winning varies on a team's market size where counterintuitively the relation is more pronounced in smaller markets. The current empirical study contributes to the existing literature on the value creation process for sport franchises by revealing a statistically robust and quantitatively significant positive spillover effect of winning on the value of a team using evidence from the NBA.

Keywords: data visualizations; NBA valuation; sport analytics; panel analysis

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1.Introduction

Analytics is the key that will unlock the potential future of sports and has become increasingly vital to maintain the competitive advantage of contemporary sport organizations (Szymanski, 2020). It encourages businesses to make better decisions, allows for improved efficiency, and provides clearer insights through data mining and visualization (Keim et al., 2013). Although the business world has been one of the beneficiaries of analytics, the sports industry is leading this analytical revolution (Michelman & Shields, 2020). Over the past decade, the sports industry has increasingly relied on analytics. For example, analytics have been used to evaluate a team or a specific player's on-court performance (Fernández et al., 2019). By implementing the use of robust analytics within a team's operations, performance is quantifiable. As a result, a team can determine what will add or subtract value to reach a desired, measurable peak performance.

One of the major sport leagues that has embraced the benefits of analytics is the National Basketball Association (NBA). Teams have been able to improve efficiency in both the player performance and the business aspect of operations (Freeman, 2016). For instance, a multitude of advanced statistics can be used to demonstrate how a player can boost athletic performance, such as defensive win shares, true shooting percentage, and player efficiency rating. Additionally, teams can decide what advanced analytics they find to be imperative to their success.

While much attention has been drawn towards the game performance facet of analytics by the NBA and sports media, the use of analytics for business aspects by NBA teams and the Association remains a crucial element to the field of sports analytics. An issue facing the NBA and its member organizations is how their respective records impact team franchise values. The prevalence in today's NBA of "tanking" (i.e., intentionally losing games in order to get a higher draft pick) has led to multiple teams fielding purposefully poor teams over a string of seasons to make their records worse (Price et al., 2010). While this method may have a clearer path to a potential championship-caliber team than may otherwise be available, winning should matter to every franchise, as it is the basis of competition itself.

There is a consensus of understanding that the power of star players, marketing strategies, market size, and a team's location can create value (Berri et al., 2004; Burger & Walters, 2003; Gaines, 2014; Hausman & Leonard, 1997; Reiff, 2020). Although the existing literature has assessed the value to which these factors contribute, limited attention has been given to winning. Through the use of analytics and publicly available secondary panel data, the purpose of this project is to explore the extent to which winning contributes to the economic value of NBA franchises while controlling for market heterogeneity, star player influences, and unobservable factors such as year fixed effects. In the next section, we review pertinent literature on the determinants of sport franchise values.

2.Literature Review

In the business world, companies are valued

at their dollar worth (Vitez, 2020). Valuation methods are used to determine this worth, with the NBA being no exception. Understanding what creates value for NBA franchises is crucial in competition, as it allows the league to examine their own progress and compare themselves to competitors (Georgios & Chris, 2015). Like the business world, entities in the sports industry can use valuation methods and understand value creation factors to better determine their monetary worth.

2.1 The Determinants of Franchise Values

Winning

Fans and media use winning to measure a team's success level (Berka, 2019). While there is a common stereotype that owners solely care about profiting from their respective franchises, this is not necessarily the case for all owners. Wyc Grousbeck, a part-owner of the Boston Celtics, has explained how the team's ownership group makes winning their top priority. Although financial aspects were down the list of their priorities, the Celtics were able to appreciate in their monetary value (Weil, 2020). This implies that winning has some form of influence on a team's franchise value.

A team's winning percentage directly impacts their chances of making the playoffs, which leads to more games for fans to attend. The Golden State Warriors played an additional 105 games over their stretch of five straight appearances in the NBA Finals between the seasons 2014-2015 through 2018-2019 (Basketball Reference, 2019). During this span, they played an average of 103 games per season, which is an additional 21

games every year. On the contrary, the Phoenix Suns did not make it to the playoffs during that span (Basketball Reference, 2019). Hence, the Warriors have had more games and opportunities to increase ticket revenue, television deals, and merchandise sales.

Market Size

Market size represents a significant factor that has been used to analyze a team's worth. The factor provides an economic grounding for the analysis of franchise values while controlling for unobservable characteristics of franchise quality that drive changes in the hedonic prices of the franchise (Humphreys & Lee, 2009). There is a presumption that big market franchises tend to invest more aggressively than their small market counterparts in acquiring the lion's share of athletic talents to maintain their on-court domination and competitive advantage (Burger & Walters, 2003).

Although the empirical literature has examined the relationship between market size and franchise values, evidence has been mixed and inconclusive. Previous scholarly work in sport economics has investigated how a team's revenue generation was directly related to the size of the market from which a baseball club draws loyal fans (Butler, 1995). Other economists also tested if each extra win has the capacity to generate more marginal revenues for sport teams based on their market size - no significant difference were reported (Scully, 1989).

In a similar vein, from the 2012-2013 to 2018-2019 seasons, the Los Angeles Lakers had an average winning percentage below 0.500 (Basket-

ball Reference, 2019)[1]. However, they maintained the second highest NBA franchise value due to playing in the second-largest market in the United States (Badenhausen, 2019; Federal Reserve Economic Data, 2019) . Hence, an accurate measurement of market size is crucial to our understanding of the value of NBA franchises. The factor that measures market size in this study is GDP (Gross Domestic Product), which is congruent with the existing literature from sport economics (Andrade Rosas & Flegl, 2019).

Star Player Influence

Star player influence represents another important variable that has been discussed in the extant literature to determine team franchise values (Berri et al., 2004; Hausman & Leonard, 1997). Without star players, it is more difficult for a team to bring in revenue because fans are less motivated to spend their capital on a jersey or game. Anecdotally, star players provide value to their team on the court, but they can also provide value to their franchise off the court. A star player's off-court value can also be measured based on changes in merchandise sales, television ratings, and fan attendance (Humphreys & Johnson, 2020). When combining both on-court and off-court value of a star player, an NBA franchise has an opportunity to create immense monetary value.

While star players are able to generate value in multiple ways, a franchise's value consists of several other factors. A franchise's value is primarily

comprised of their market, stadium profits, and brand (Badenhausen, 2019). Sports managers can improve their business strategies and operations by identifying different kinds of value creation. By understanding the value creation for specific factors, a franchise can properly assess where to concentrate their efforts to increase their monetary value.

Collectively, the previous literature has been scarce in evaluating the power of data-driven analytics and related tools to create an index on the monetary value creation of winning for NBA franchises. NBA owners aim to increase the fiscal value of their respective franchise; however, evidence is scant, particularly about the marginal economic impact of winning in affecting the value of NBA teams by controlling for aforementioned factors such as market size and star player influence. To that end, the purpose of the current study is to bridge this gap in value creation for NBA franchises in the literature. The next section describes an econometric model of the value of winning (VOW) index and discusses how this model is applied to the NBA, for which a rich secondary panel data is compiled and tested. This is followed by discussions of results as well as the implications for the league and seven selected franchises. The final section concludes with limitations and an agenda for future research.

3.Methods

3.1 Data Collection and Procedures

This analytical study on the NBA follows a stepwise procedure in analyzing publicly trackable panel data between the 2011-2012 and 2018-

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1 See Gross Domestic Product | FRED | St. Louis Fed for more information on the GDPs of each city and how they have updated over time.

2019 seasons. The first step was to compile data from Basketball Reference (2019) to decide what qualifies as a winning, losing, and average team within the targeted time frame. This time frame was chosen because it best represents the modern NBA, both financially and stylistically. The 2010s of the NBA was the start of the "player-power movement" that we see in today's game. The NBA culture was revolutionized, giving more power and freedom to players on and off the court (Lowe, 2019). The next step was to gather data to determine the market size in which each NBA team is located. Finally, data was gathered on jersey sales as a proxy to determine a star player's influence.

3.2 Global Model Specification with Fixed-Effect Panel Regression

In this paper, the value of winning was the first identified using a panel analysis in STATA version 16. The global empirical model can be expressed as follows:

$$VOW_{it} = \beta_1 WIN_{it} + \beta_2 STAR_{it} + \beta_3 GDP_{it} + ft + \varepsilon it$$

VOW_{it} refers to the dependent variable indicating relative annual changes in a given team's value i at t between the 2011-2012 and 2018-2019 seasons. WIN_{it} and $STAR_{it}$ indicate the winning percentage and the total number of star players a franchise has at a given year, respectively. The GDP for host cities used in this study was measured in billions of U.S. dollars. To adjust for the large GDP values, these values were log transformed to restore the normality assumption. The f_t variable denotes the year-fixed effects in the panel model. The year fixed-effects were included to control for either unmeasured or unobservable time-variant heterogeneities (e.g., fans' attitudes toward an NBA franchise; changes in recent purchase prices of NBA franchises) that may confound the impacts of included predictors on teams' values. Lastly, ε_{it} represents the residual terms with a mean of zero and homogeneity capturing additional omitted predictors (e.g., offensive ratings) of an NBA franchise's value.

Dependent Variable

Our team gathered data on each NBA franchise's value from Forbes for the 2011-2012 to 2018-2019 seasons. This is a simple way to measure the monetary growth of the league. However, there was a massive influx of franchise values in the 2015-2016 season due to a new television deal that was signed during the 2014-2015 season, which was valued at $24 billion. This new television deal nearly tripled the value of the previous television deal (Conway, 2014). As a result, some franchise values grew simply due to the increase in the NBA's value as a whole.

To accommodate for television deal-related increases in value, it was important to remove this inflation factor to isolate the variable of winning and its effects on franchise value. Using the NBA franchise values collected from Forbes, we found the percentage increase or decrease of an NBA franchise's value relative to the previous year. We then compared this change in percentage for each team to the average change percentage for their respective market size. For example, during the 2015-2016 season, the New York Knicks increased their value by 78.6% from their previous year (Badenhausen, 2019). The Knicks are a large market team, and on average, large market teams increased their franchise values by 88.2% relative

to the previous year.

In that case, the Knicks missed out on an opportunity to increase their franchise value by 9.6%. The Knicks would have had to increase their franchise value by $241 million to be on par with other large market average percentage increases in franchise value. In this study, we refer to this statistic as a team's "inflation stat." This allows us to fairly compare the increases and decreases in franchise values on a year-to-year basis relative to a team's market type. By taking out the inflation of franchise values, it is deemed more accurate to assess all franchise values on an even playing field. Lastly, the refined values were also log transformed to restore the normality of the dependent variable.

4. Independent Variables

Winning. Our team used Basketball Reference (2019) to record the winning percentages of all 30 NBA teams from the 2011- 2012 to 2018-2019 seasons (eight seasons). The 2011-2012 season was shortened due to a lockout that occurred. As a result, only 66 games were played that season (Beck, 2011). Since every season was not based on the norm of 82 games, we used the average winning percentage per season as opposed to the total number of wins during our period of study. This allowed us to depict the measurement of winning accurately.

Typically, a winning team has a winning percentage over 50%, a losing team has a winning percentage under 50%., and an average team has a 50% winning percentage. However, in this study, we define an average team having a winning percentage between 45%-55% to allow for a meaningful variation within our study.

Market Size. In this paper, market size is measured using the Gross Domestic Product (GDP) of a metropolitan area. Although market size can be defined and calculated in several different ways, previous research suggests that GDP well represents the monetary size of an economy (Dynan & Sheiner, 2018). The GDP data for this study comes from the Federal Reserve of Economic Data, St. Louis Fed. Data inputs included eight seasons for 30 teams that were observed on a yearly basis. There are three market sizes: large market, middle market, and small market. This classification was consistent with the approach used in the previous empirical examination (Burger & Walters, 2003). A large market team plays in a city where the GDP is over $400 billion, a middle market team plays in a city where the GDP is between $300 billion and $400 billion, and a small market team plays in a city where the GDP is less than $300 billion. Each of the teams was placed into the categories of a small, middle, or large market based on their GDP of the last season studied. There are 16 small market teams, 4 middle market teams, and 10 large market teams in this study. The distribution of GDP was left skewed so that more teams were classified in the small market category as opposed to the middle and large markets.

Star Player Influence. Star players are valuable assets that bring in additional revenue and fan interest to a team (Michelman & Shields, 2019). Data on the top 15 jersey sales per season, spanning from the 2011-2012 to 2018-2019 sea-

sons, was used to measure star player influence. This measurement properly considers fan interest and revenue. Previous literature indicates that the fan interest and revenue a player brings to a team is highly correlated with jersey sales (Pivovarnik et al., 2008). The data collected on top jersey sales comes from Interbasket (2019).

4.1 An Illustration of Market Heterogeneity

Finally, we selected seven NBA franchises including the Indiana Pacers, the Miami Heat, the Milwaukee Bucks, the Minnesota Timberwolves, the New York Knicks, the Oklahoma City Thunder, and the Orlando Magic to illustrate the market heterogeneity of VOW. These teams all have their own unique winning track record, market, and star player influence over the period of this study. This allows for interesting comparisons among the teams of focus. One large market team, two middle market team, and four small market teams were selected. This decomposition is aimed to demonstrate the disparity of the value of winning between small markets and other market sizes.

5.Results

Detailed summary statistics for the included dependent and independent variables were displayed in Table 1. *STARS* is used to identify the number of star players a team had for a particular season. The minimum amount of star players for a team in one season was 0. The maximum amount of star players for a team in one season was 4 from the Golden State Warriors in the 2015-2016 season. These players included Stephen Curry, Klay Thompson, Draymond Green, and Andre Iguodala. *WIN* represents the winning percentage each team had in a respective season. In the meantime, the lowest winning percentage recorded was 11% from the Charlotte Hornets in the 2011-2012 season, while the highest winning percentage recorded was 89% from the Golden State Warriors in the 2015-2016 season. *GDP* is used to represent the market size of each city. The average natural logged *GDP* for the NBA over our period of study was 11.40, which was equivalent to $250.43 billion. The natural logged VOW min and max were -8.660 and 9.160, which equated to -$457,088,190 and $950,905,707.

Table 1 *The Results of Summary Statistics for the NBA Panel*

	(1)	(2)	(3)	(4)	(5)
VAR.	N	mean	sd	min	max
STARS	240	0.496	0.792	0	4
WIN	240	0.500	0.153	0.110	0.890
Ln (GDP)	240	11.40	0.359	10.80	12.22
Ln (VOW)	240	-0.576	7.591	-8.660	9.160

Note. VAR.= variables; sd=standard deviation; Ln=natural logarithm.

All teams, including our seven teams of focus, experienced exponential amounts of inflation throughout the period of study as shown in Figure 1. The "inflation stat" combated these effects and allowed us to look at all teams from an even playing field. This showed what their gain or loss in value would be each year compared to the average increase or decrease in teams' value in the same market type. The statistic allowed us to properly evaluate the change in franchise values from year to year. The only market type to decrease in value from one season to the next was the small market type. This occurred in the 2011-2012 season and can be attributed to the NBA having a lockout season. In the 2015-2016 season, all market types saw significant inflation in their franchise values due to the NBA's new television. However, large market teams saw a much larger spike in their franchise value compared to middle market or small market teams.

Figure 1. *Percent Changes in Teams' Values per Market Type*
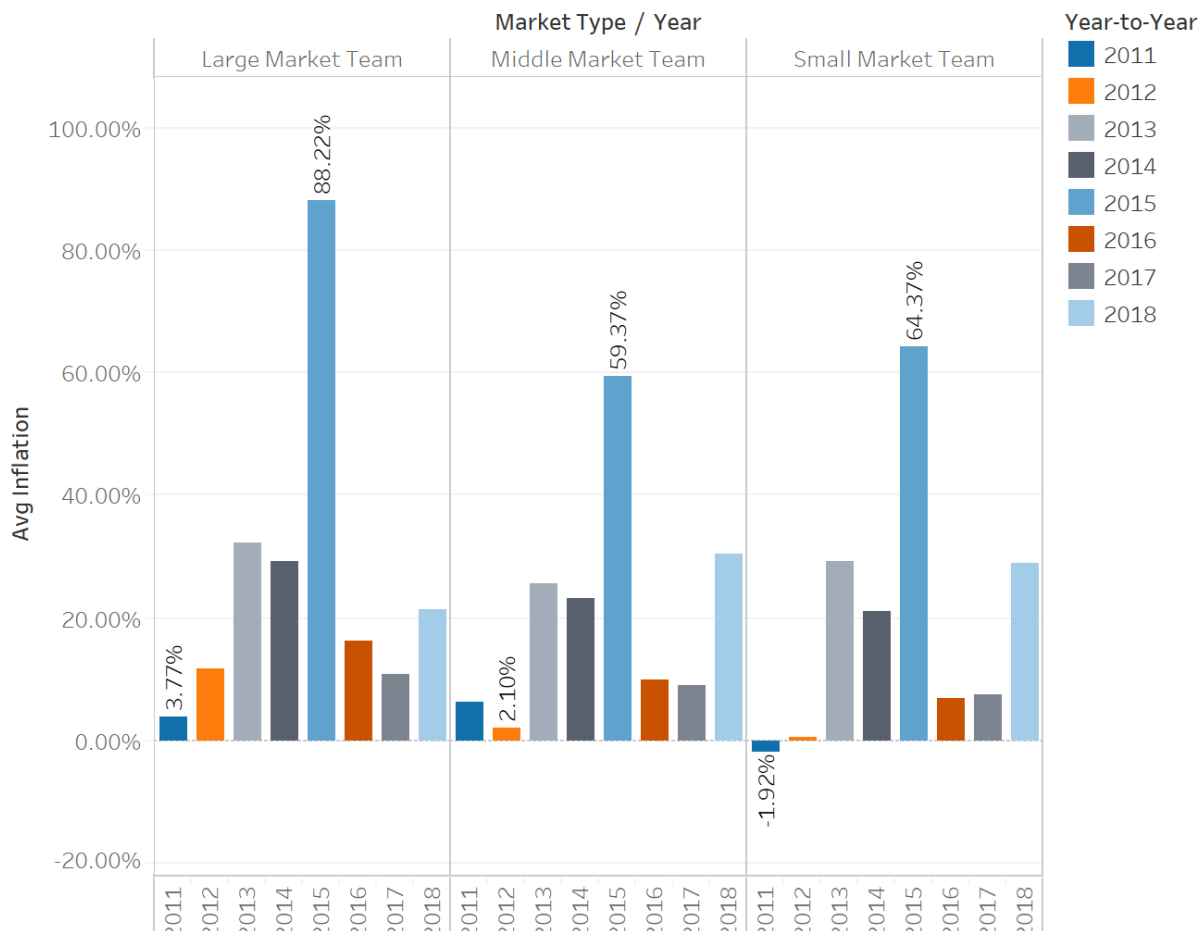
The global panel regression model results were displayed in Table 2. Across the three panel models, winning was consistently positively correlated with a team's value at $p < .001$, whereas star player influence and market size were not significantly correlated with changes in franchise values. Model 1 illus-

trates *WIN* being tested as the sole predictor to influence a team's value, resulting in an R-Squared value of 16.5%. Model 2 tested *WIN* and *STARS*, resulting in an R-Squared value of 16.7%. Finally, Model 3 tests all three predictors, resulting in an R-Squared value of 17.7%. Although an R-Squared value of 17.7 percent was not deemed large, the effect size was neither small indicating an acceptable level of external validity inferred by our results (Ferguson, 2009). In the meantime, as each predictor was added to the model, the marginal changes in R-Squared value increased but was not significant.

Notably, both the number of star players and the market size by themselves were not significant predictors to a franchise value when considering the main effect of winning, but the effect of winning on a team's franchise value might vary based on the size of market in which a team is located. Using the beta coefficient presented in a more robust specification of Model 3, for every 1% increase in winning percentage, a team's value increased on average by $196 million across the league over the course of the eight seasons studied.

Table 2 *The Results of Year Fixed-effect Panel Regression*

	(1)	(2)	(3)
VOW	Model1	Model2	Model3
WIN	15.663***	14.154***	14.176***
	(3.813)	(3.052)	(3.065)
STARS		0.668	0.651
		(0.703)	(0.687)
GDP			-14.486
			(-1.475)
Constant	-8.409***	-7.986***	157.144
	(-3.985)	(-3.635)	(1.403)
Observations	240	240	240
R-squared	0.165	0.167	0.177
Number of ID	30	30	30
Year FE	YES	YES	YES

Note. t-statistics in parentheses; *** $p < .001$, ** $p < .01$, * $p < .05$

For an illustration purpose, Table 3 includes an average of each factor with a standard deviation of the sample population for the seven selected NBA teams. Our findings showed that each team of focus had some form of fluctuation in their winning percentage. In large part, this was due to changes in

players, coaches, and staff. For instance, the New York Knicks had the second-worst average winning percentage throughout the specified period among the selected seven franchises. On the other hand, the Miami Heat and Oklahoma City Thunder had the best average winning percentages among the selected 7 teams.

Table 3 *Heterogeneity Effects in Three Predictors Breakdown with the Seven Teams*

Teams	Win%	GDP	Star Players
Indiana Pacers	57.7% ± 6.9%	$129,241,654,625 ± 11,279,801,775	0.13 ± 0.35
Miami Heat	58.9% ± 12.3%	$303,430,262,250 ± 38,510,910,102	1.13 ± 0.83
Milwaukee Bucks	47.5% ± 15.2%	$93,060,899,375 ± 6,695,278,935	0.38 ± 0.52
Minnesota Timberwolves	40.0% ± 11.0%	$324,112,262,500 ± 28,922,522,215	0.13 ± 0.35
New York Knicks	39.9% ± 15.5%	$1,455,236,875,000 ± 147,525,439,947	1.38 ± 0.92
Oklahoma City Thunder	64.2% ± 7.4%	$183,991,625,000 ± 11,872,065,016	1.63 ± 0.52
Orlando Magic	37.3% ± 11.5%	$119,652,102,375 ± 13,498,672,875	0.13 ± 0.35

The results of market heterogeneity indicated that the value of winning for our teams of illustrations varied significantly based on their market size. Small market teams had the highest values of winning, starting with the Milwaukee Bucks at $270,522,025. Following the Bucks were the Oklahoma City Thunder at $167,293,613, the Orlando Magic at $130,101,840, and the Indiana Pacers at $115,055,024. Next, the Minnesota Timberwolves and the Miami Heat were our middle market teams with values of winning at $103,951,786 and at $96,759,561, respectively. Finally, our sole large market team, the New York Knicks, had the lowest value of winning at $56,438,339.

6.Discussion

Speaking from a league-wide perspective, winning undoubtedly affects a team's ability to increase its overall value. The global panel model demonstrates that winning is a statistically robust and quantitatively significant contributor to a franchise's change in monetary value. The results of our panel analysis suggest that for every percentage increase in an NBA team's winning percentage, approximately $196 million in value may be created across the league over the studied period. Any teams looking to improve their franchise value, regardless of their market size, can do so by simply winning more games. Winning games is not easy in a league as competitive as the NBA, but this information allows sport managers to make the best decisions regarding their goals. When determining how much the value increases from year-to-year, winning led to a sig-

nificant spike in a team's value. According to the results of this study, the value of winning is higher for small market NBA franchises, although it is important to understand that the value of winning is higher for those teams that actually win. The effects of the value of winning on the three different market types are discussed below, along with our teams of illustrations.

Our results indicated that small market teams generate more value from winning than their counterparts. Looking across the illustrated teams of selection, the value of winning for the small market teams was an average of $153,571,173. Teams like the Bucks and Thunder were able to greatly improve their franchise value over the period of study due to their winning efforts. Specifically, the Bucks had the lowest winning percentage in the NBA throughout the 2013-2014 season before completely turning things around and finishing with the highest winning percentage in NBA throughout the 2018-2019 season (Basketball Reference, 2019). During this turnaround period, the Bucks franchise value multiplied by a factor of roughly two and a half. The Buck's impressive turnaround correlated with their high value of winning. Like the Bucks, the Thunder have a high value of winning. The Thunder had the second-highest winning percentage in the small market type group over the period of study. Winning brought the Thunder great value and helped them become one of the most highly valued small market teams in the NBA.

On the other hand, middle and large market teams generate less value from winning than small market teams. For instance, in the 2018-

2019 season, the Knicks had the worst winning percentage in the NBA at 20.73%, yet they had the highest franchise value at $3.6 billion. Winning clearly did not play as significant a factor for their franchise value as it would have for a small market team. However, the Knicks missed out on an opportunity to increase their franchise value in the 2018-2019 season by losing so many games. In this same season, the average large market team increased their franchise value by 21.40% while the Knicks only increased their franchise value by 9.09%. Correspondingly, the Knicks had the lowest value of winning in our teams of focus at $56,438,339.

Previous studies have bestowed minimal attention to the main goal of sports - winning. Every decision a sport team makes should have the intention of helping them win games. There have been some evaluations on the value of players, markets, in-game play, and other factors that contribute to a franchise's success (Fernández et al., 2019; Kwak and Pradhan, 2019; Simović et al., 2019). Filling the gap for value creation is essential to the growth of all sport leagues. Collectively, our results have provided analytical evidence that proves there is value created by winning.

7.Managerial Implications

The current study provides strong evidence of the positive influence winning has on a NBA team's franchise value. Understanding the sources of value creation can provide insights that help NBA franchises. By determining the value of winning, NBA franchises can properly strategize where to focus their efforts to maximize their po-

tential franchise value. For example, a small market team like the Oklahoma City Thunder highly values winning. Building a strategy that assists the Thunder in finding on-court success is essential to the increase in value from year-to-year. On the other hand, winning does not hold as much value for a large market team like the New York Knicks. Despite the Knicks' losing record over our period of study, the franchise experienced exponential growth in their value. Therefore, the Knicks do not need to emphasize winning as much as a small market team. Instead, the Knicks may increase their value more by shifting the focus from the promotion of team performance to the recruitment and retention of star players.

While this paper focused on the NBA, understanding value creation factors is useful across all sports. Our results demonstrate that there is relevance in examining the value of winning. With the growth of sports analytics, the future is bright for all sport organizations. The utilization of value creation paired with analytics can create an abundance of opportunities for these organizations.

8.Limitations and Future Research

Through data analysis, this study identified that winning has a positive influence on a team's franchise value. However, there are undoubtedly other factors that can contribute to a particular team's worth. This limitations section discusses factors that could be incorporated to further construct the VOW index in future studies.

Before starting the data collection process, we had to decide on a time frame that would best fit

within the scope of this study. In the past decade, the NBA has evolved in many ways. We thought it would be best to evaluate the value of winning during the time where the NBA's value spiked enormously. Although we were able to find relevant insights on the value of winning, we were unable to sample the 2010-2011 and 2019-2020 seasons due to the lack of availability in data at the time. Future studies could collect data from the two most recent seasons to examine how the value of winning might have been impacted in the wake of the COVID-pandemic.

When determining our metric for market size, our initial intention was to locate data on the television ratings for each NBA city. Regrettably, this data was not publicly available at the time. Future efforts should use a metric that is tailored to each team, such as television ratings from Nielsen, to further cross-validate and enhance the robustness of empirical results.

Initially, we desired to use merchandise sales as the metric for star player influence. However, publicly available data was limited. The best data found was top 15 jersey sales beginning in the 2011-2012 season. Additionally, retired superstars might also represent a factor that could contribute to a team's present-day value. For example, the Chicago Bulls had arguably the greatest and most noteworthy player in NBA history when Michael Jordan was there. The Bulls Dynasty featured superstars like Michael Jordan, Scottie Pippen, and Dennis Rodman which helped to strengthen the Bulls' brand equity today. Despite the Bulls winning percentage of .514 over our period of study, they still maintained the fourth highest

value among NBA franchises (Basketball Reference, 2019; Badenhausen, 2019). Notably, many of these retired hall of famers still rank amongst the league leaders in jersey sales. Players like Michael Jordan, Kobe Bryant, and Allen Iverson still have some of the top-selling jerseys for their respective franchises, and even across the league (Interbasket, 2019; Rovell, 2008). The combination of a lack of data and no relevant way to measure a historical player's value led to a limitation in our ability to properly measure the star player influence, which warrants future investigations.

Furthermore, future studies should consider other factors that could influence a team's franchise value. The recent sales of NBA teams and how this effect the value of other teams' franchise values, as well as how moving into a new arena can affect franchise value. There are a multitude of factors that subsequent research can evaluate when analyzing the makeup of a team's franchise value.

9. Conclusion

The current study creates a value of winning index that considers three independent variables: an NBA team's winning percentage, market size, and star player influence. Our findings show that winning has a positive effect on the NBA as a whole, the NBA's three market types, and seven specific teams of focus. The outputs of both the global panel model regression analysis and teams of focus regression analysis indicated winning percentage was a statistically significant factor in relation to the change in franchises' values over the period of study. Our teams of focus further

prove how the value of winning varies by market type. Small market teams have a higher VOW in comparison to other market types. Additionally, star players provide talent on the court which can help a team win and engage fans off the court. Although market size and star player influence were not statistically significant in this study, our research indicates that they still greatly contribute to an NBA franchise's monetary value. Nonetheless, the use of all three independent variables in our study helped us pinpoint the value of winning.

The main goal of all sports is to win. The results of the current study provide useful insights that may help NBA teams build strategies to maximize their franchise's value. While this paper has a focus on the NBA, understanding value creation factors is useful across all sports. A study similar to this could potentially benefit professional sport leagues around the world. The NBA has grown exponentially in value since its inception, outpacing the growth rate of the macroeconomy by a wide margin in North America (Draper, 2020). Finding ways to add and create value is essential to the continued growth of the teams and the league itself. New doors can be opened by discovering the true value of aspects that were never thought to be evaluated.

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