

## Counterpoint Global Insights

# Turn and Face the Strange

## Overcoming Barriers to Change in Sports and Investing

CONSILIENT OBSERVER | September 8, 2021

### Introduction

A reasonable presumption is that organizations want to succeed in their purpose. The measure of success is different across fields and often has absolute and relative metrics. Professional sports franchises strive to field teams that win and are profitable.<sup>1</sup> Investment management organizations seek to generate excess returns for their investors while fostering a healthy business.<sup>2</sup>

One of the challenges in attaining and maintaining organizational success is that conditions change. Some changes are external, such as the rules for a league or economic conditions for a company. Others are internal, such as personnel or the quality of a strategy. As a result, organizations have to learn and adapt. Those that do may thrive and those that don't risk becoming obsolete.

Organizational learning and adaptation allow leaders to make better decisions. Philosophers discuss two sources of error in decision making.<sup>3</sup> One is the result of limited knowledge. For example, the medical community may not have developed a drug to cure a specific disease or a surgical procedure to treat a patient. The second source of error is the failure to implement what is already known. For instance, there are more than 20,000 deaths from medical error in U.S. hospitals each year.<sup>4</sup> Checklists are one way to make sure that what is known is faithfully applied.<sup>5</sup>

Employees for sports organizations include the playing team (players, coaches, and scouts) and the business side (marketing, communications, and operations). The organization then seeks to implement a system, through strategies and supporting tactics, in an effort to win. Great players are critical to success. Teams can acquire players through the amateur draft, by trading for them, or via free agency. The goal is to have a good fit between the skills of the players and the system. Great organizations develop a framework for decision making that serves the goal of winning. Investment firms are similar to sports teams in many ways.<sup>6</sup>

### AUTHORS

Michael J. Mauboussin  
michael.mauboussin@morganstanley.com

Dan Callahan, CFA  
dan.callahan1@morganstanley.com

Player evaluation and skill building are essential to the success of any sports organization. The ability to apply analytics to talent evaluation varies based on factors such as whether the action is discrete or has interaction, whether the sport itself has continuous play or stops and starts, the length of the season, and the sample size of scoring opportunities.<sup>7</sup> That noted, there is evidence that player evaluation remains inefficient as the result of analytical limitations and cognitive biases.<sup>8</sup>

Sports teams attempt to maximize their outcomes in the face of resource constraints. These include payroll maximums and minimums, luxury taxes, and the willingness of owners to spend money. In some sports, superstars play an outsized role in success. In others, the weakest players contribute more to wins and losses.<sup>9</sup> In superstar sports, such as the National Basketball Association (NBA), the top 3 players, 20 percent of the roster, can earn two-thirds or more of the total payroll. In the National Football League (NFL), quarterbacks are the top 10, and 13 of the top 15, paid players.<sup>10</sup>

Building a roster is a lot like building a portfolio. Teams would like to sign players with a value higher than their price. Concentrating the payroll on a few players is akin to having an undiversified portfolio, with higher risk and higher potential reward. Managers must dynamically assess the constituents because their prices and value change all of the time. And elements such as turnover and time horizon are vital contributors to results.

The first question to ask in any organization is: what contributes to winning? Managers should seek to answer this analytically, which will lead to certain types of players, strategies, and tactics. For many teams, the response to this question creates an inevitable tension between what organizations have always done and potential new ways of doing things. As one player development professional summarized it, “Your number one tool . . . is not playing experience, it is a growth mindset that allows you to be curious and take advantage of all of the information that is readily available.”<sup>11</sup> Success requires evolution because the world changes.

In 2020, Richard Thaler, a professor of economics at the University of Chicago and the 2017 recipient of the Nobel Prize in Economics, gave a talk at the MIT Sloan Sports Analytics Conference titled “The Sports Learning Curve: Why Teams are Slow to Learn and Adapt.” He reviewed a number of strategies that have been shown to be effective analytically but that teams have been slow to adopt. Examples include reducing the rate of bunts and base stealing in Major League Baseball (MLB), increasing the rate of 3-point shots in the NBA, and going for it on fourth down in the NFL.<sup>12</sup>

Peak performance is important because this is big business. The average MLB (MLB) franchise is worth \$1.9 billion, the average NBA franchise \$2.2 billion, and the average NFL franchise \$3.5 billion.<sup>13</sup> And winning is a factor that contributes to franchise value.<sup>14</sup>

You need not know anything about sports to appreciate the point that there was useful knowledge that took a long time to implement. In some cases, the knowledge has yet to be applied. This report examines the barriers to change. We use sports, and the NBA in particular, as the prime example but then apply the lessons to investment management. These impediments to change afflict all organizations to some degree.

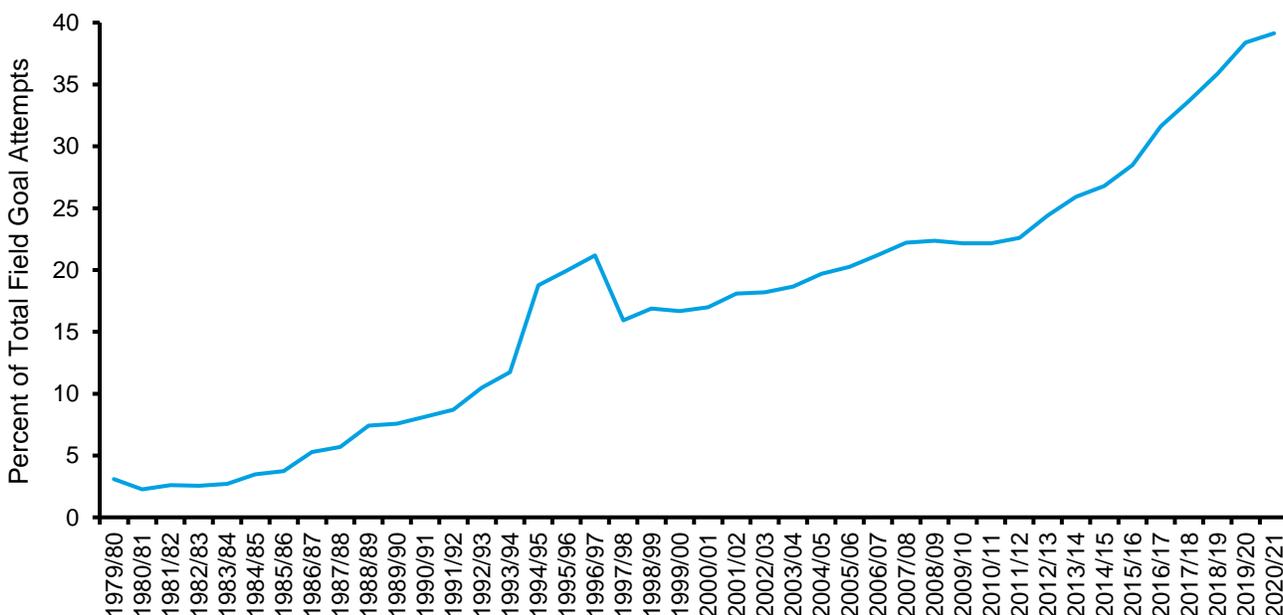
### Innovation: When Three > Two

In the 1979/80 season, the NBA introduced a line behind which a player would score three points, rather than two, for a made shot.<sup>15</sup> The line is 23.75 feet from the basket, except in the corners, where it is 22 feet away in order to accommodate the court’s 50-foot width.

The shot was a novelty. Larry Bird, one of the NBA’s all-time greatest players, said, “It’s strange when you think back. I can’t remember even practicing the shot, unless it was for the [annual 3-point shooting] contest. I really didn’t take that many, compared to today.”<sup>16</sup>

If Bird wasn’t working on the shot, neither were many others of the era. As a result, fewer than three percent of all field goal attempts were from 3-point range in the five seasons following the shot’s introduction. Exhibit 1 shows the evolution of 3-point shooting over time. There is a kink from the 1994/95 through 1996/97 seasons because the NBA briefly shortened the overall distance of the line. The intrepid players who did shoot from that range in the early days made only a little more than 25 percent of them, for an expected value per shot of 0.76. 2-point attempts succeeded close to half of the time for an expected value of 0.99. Today, even the teams with the worst 3-point shooting percentage make more than one-third of their long-range shots.

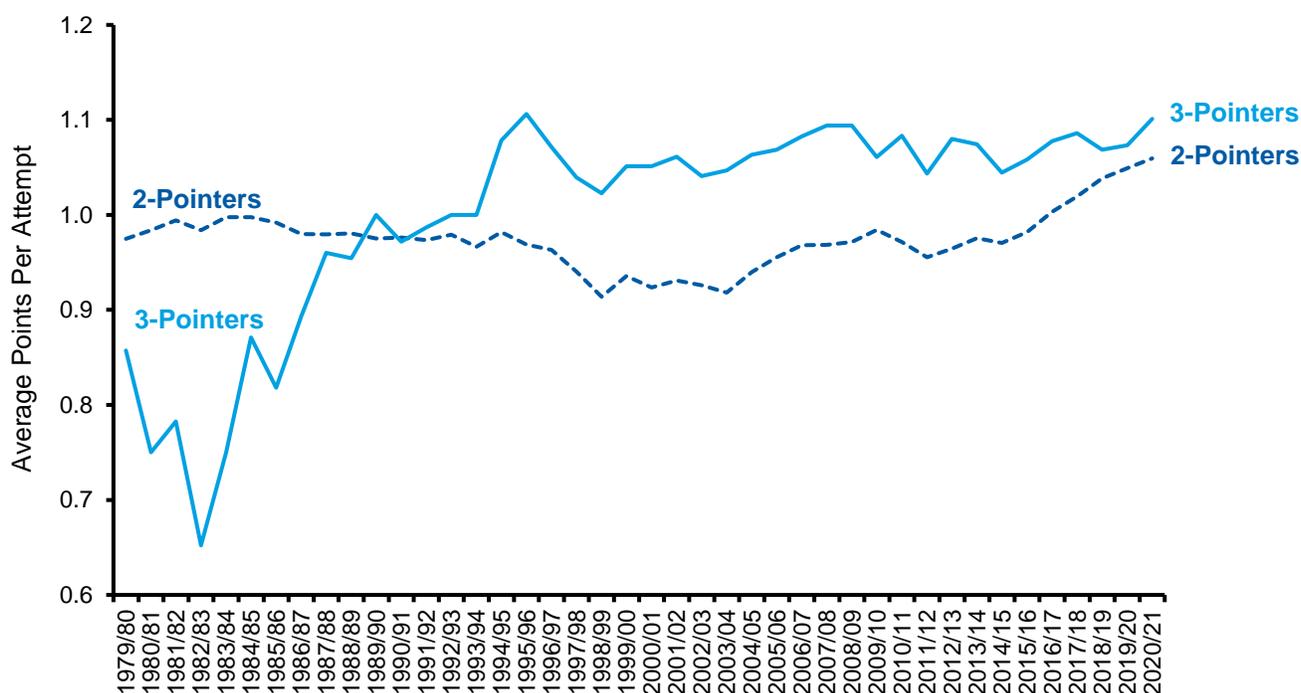
**Exhibit 1: Percent of Field Goal Attempts That Were 3-Pointers, 1979/80–2020/21**



Source: Sports Reference LLC, "NBA League Averages-Per Game," Basketball-Reference.com-Pro Basketball Statistics and History, www.basketball-reference.com, August 2021.

Over time, the combination of skill identification and practice made it clear that 3-point shots could have an attractive expected value. Players improved their shooting percentage from that range, and 3-pointers finally had a higher expected value than 2-pointers about a dozen years after the initiation of the line (see exhibit 2). This is the point at which it became clear that 3-point shots were an opportunity.

## Exhibit 2: The Value of 2- and 3-Pointers, 1979/80–2020/21



Source: Sports Reference LLC, "NBA League Averages-Per Game," Basketball-Reference.com-Pro Basketball Statistics and History, www.basketball-reference.com, August 2021.

Kirk Goldsberry, a basketball writer who also teaches at the University of Texas, has done extensive and visually powerful work on the evolution of shooting in the NBA. He shows that the story is more subtle than three is better than two.

Very simplistically, you can classify 2-point shots as close or mid-range. Close shots are within or near the restricted area, which is a four-foot arc underneath the basket. Mid-range shots are essentially those that are neither close nor 3-pointers.

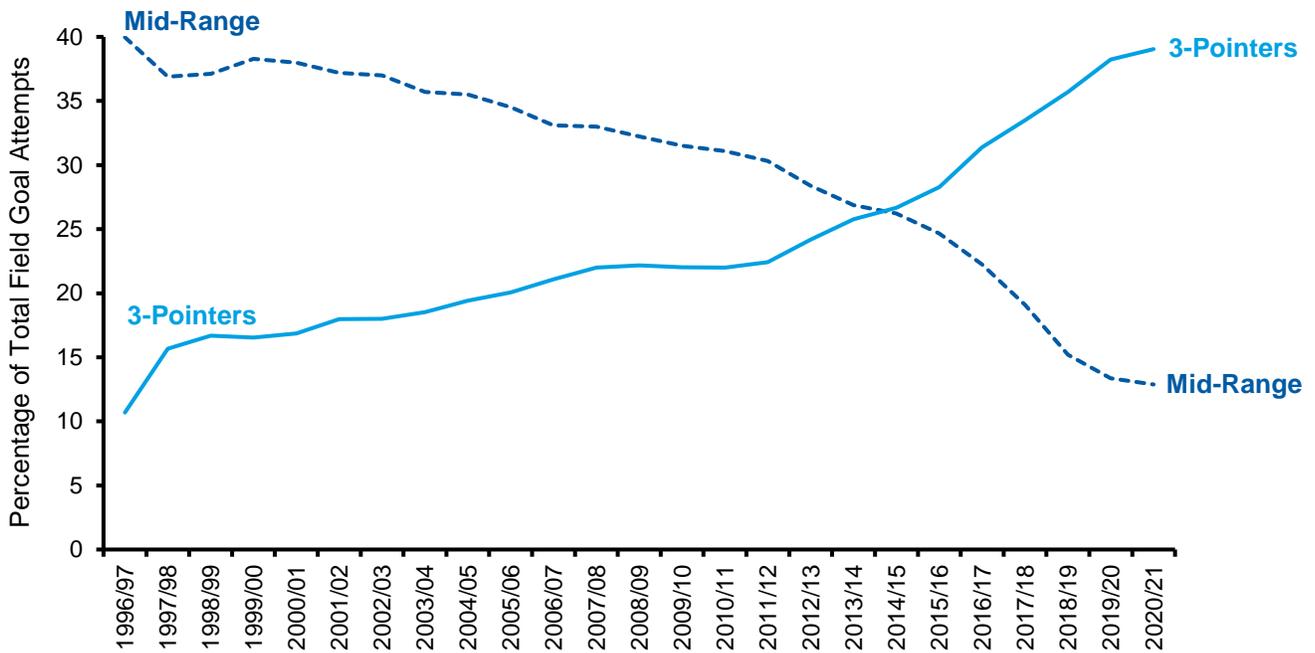
Close shots have an expected value in excess of 1.2 because they are often dunks or layups that the players make a high percentage of the time. Mid-range shots have an expected value of 0.85-0.90 in the middle of the lane, an area from the free throw line to the baseline and 16 feet wide. But mid-range shots from 8 to 21 feet have an expected value of less than 0.85.<sup>17</sup>

3-point shots have an expected value of about 1.1 overall with a slightly higher value in the corners, which are closer to the basket. Exhibit 2 shows that the expected value of 3-pointers was 14 percent higher than 2-pointers in the 2003/04 season. The natural way to arbitrage that expected value differential is to take more 3-point shots and fewer mid-range 2-point shots.

Exhibit 3 shows that is precisely what happened. A quarter century ago, about 40 percent of shots were mid-range 2-pointers and 10 percent were 3-pointers. Today, those totals have nearly flipped. As a result, the gap in expected value between 3-pointers and 2-pointers is now less than four percent.

Daryl Morey, president of basketball operations for the Philadelphia 76ers and a leader in basketball analytics, "estimated that, at its inception, the strategy of taking more 3s at the expense of mid-range jumpers resulted in approximately 12 more wins a year, roughly equivalent to spending \$30 million more a year on star players."<sup>18</sup>

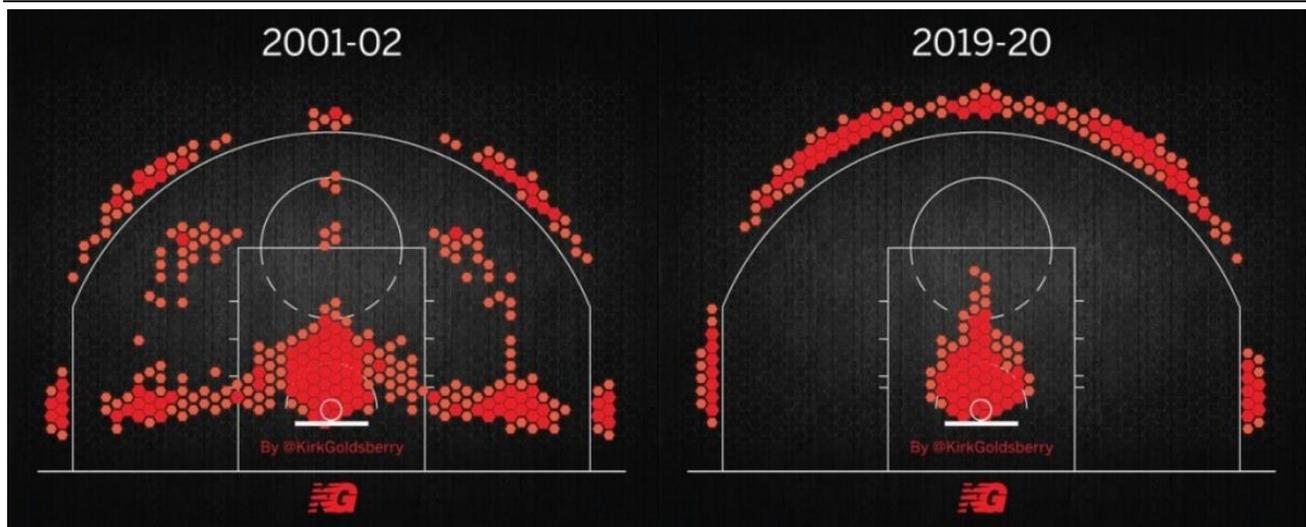
**Exhibit 3: Mid-Range and 3-Point Shot Attempts, 1996/97–2020/21**



Source: [www.nba.com/stats](http://www.nba.com/stats).

To bring the point home, Goldsberry’s analysis by shot distance shows that a 21-foot shot has an expected value of less than 0.80 while shots a foot longer in the corner, and 2.75 feet longer everywhere else, are worth about 40 percent more. Note that the 3-point shot has been around for 40 years, but it has been fully embraced only in the last decade or so. Exhibit 4 shows how the top 200 shot locations has changed from the 2001/02 season to the 2019/20 season. What used to be a potential source of edge has now become the ante to play the game competitively.

**Exhibit 4: Top 200 Shot Locations in the NBA, 2001/02 versus 2019/20**

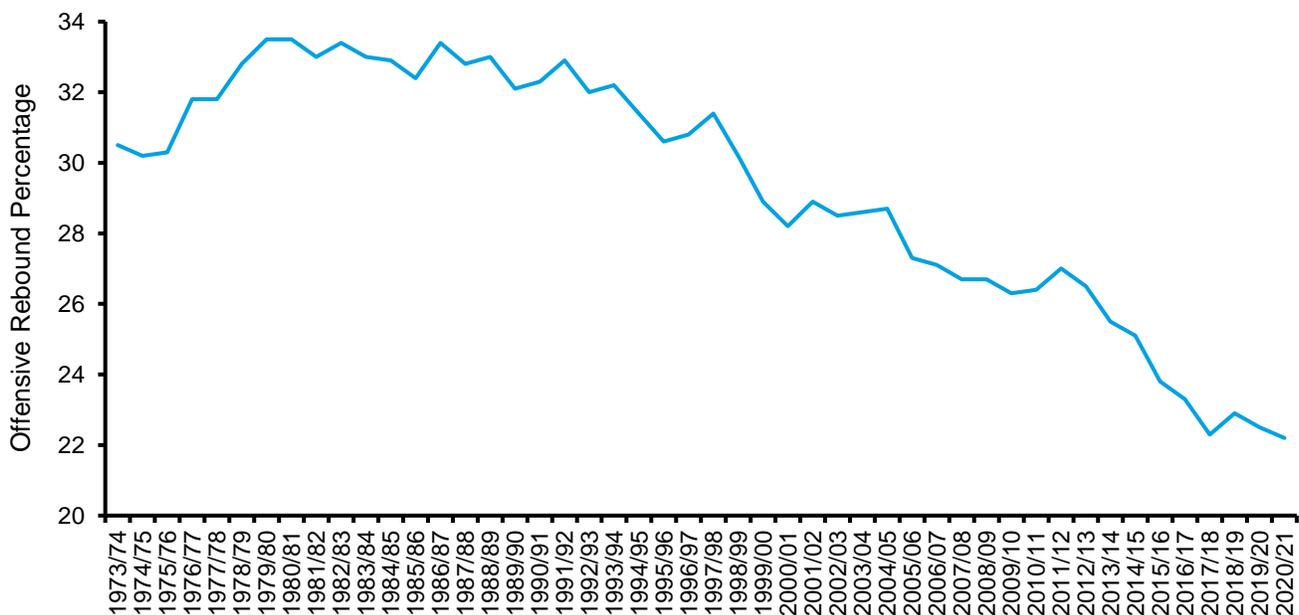


Source: Kirk Goldsberry.

The inefficiency associated with the 3-point shot has now been largely competed away. But it turns out there may be new frontiers in basketball where analysis suggests an approach that is different than the conventional wisdom. One illustration is the strategy and tactics of offensive rebounding. An offensive rebound is when a team gains possession of the ball after it misses a shot, which extends the possession and resets the shot clock to 14 seconds.

Offensive rebounds are obviously good. But if a coach instructs most of the players to try to secure an offensive rebound and they fail, the team becomes vulnerable as it transitions from offense to defense because it has fewer players back to defend. The dogma among coaches is that most players should not pursue offensive rebounds. One coach’s message to his perimeter players was, “We don’t care if you get an offensive rebound in your entire life.”<sup>19</sup> Exhibit 5 shows a steady decline in the percentage of rebounds secured by the offense.

**Exhibit 5: Offensive Rebound Percentage, 1973/74–2020/21**



Source: Sports Reference LLC, "NBA League Averages-Per Game," Basketball-Reference.com-Pro Basketball Statistics and History, www.basketball-reference.com, August 2021.

Research that relies on tracking data that have been available only relatively recently shows that more aggressive offensive rebounding may create an edge.<sup>20</sup> After making some tactical adjustments, sending more players to rebound can create a benefit on offense that is greater than its cost on defense. If this proves to be true, it will provide another test of organizational change.

## What Impedes Change?

It is important to acknowledge that most teams in professional sports have made substantial strides in the right direction.<sup>21</sup> This includes both player evaluation and on-field strategy. But there remains a lot of room to improve decision making. Here are some of the impediments to better decisions:

- 1. Loss aversion.** Loss aversion is the idea that we suffer losses more than equal gains. As a result, we tend to avoid situations where we can be potentially wrong. This is especially relevant when the decision runs against conventional wisdom.

The decisions that contribute to the ups and downs of professional sports teams are subject to intense scrutiny by fans and the media. Most teams are under enormous pressure, especially those that are expected to win. General managers (GMs) and coaches are exposed to the wrath of outsiders when they make a personnel or on-field decision that has a poor outcome. As a result, it is often easier to be conventional than unconventional, even if being different from the crowd is likely to increase the chance of winning.

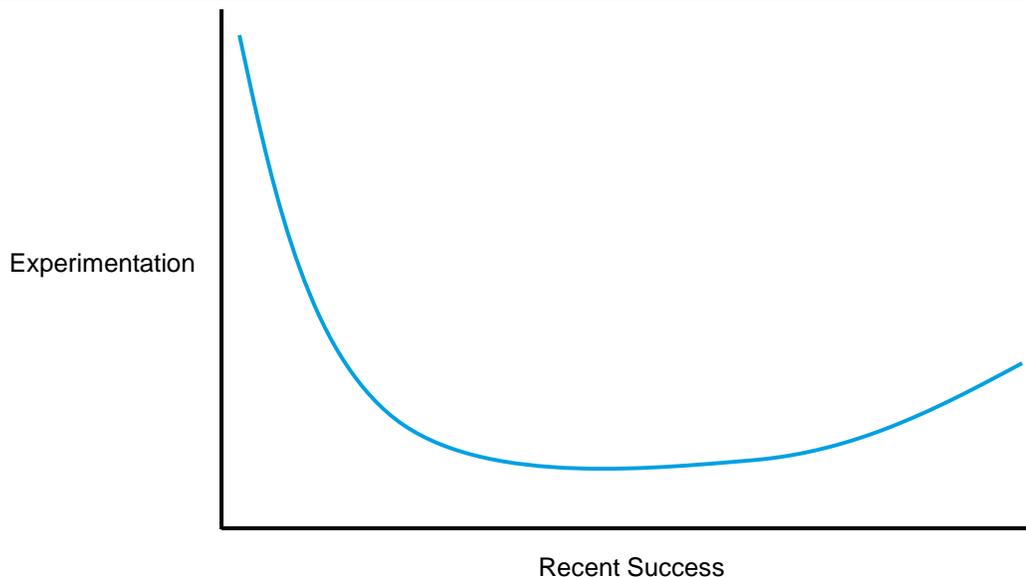
Paul DePodesta, a protagonist in the book *Moneyball* and now the chief strategy officer for the Cleveland Browns of the NFL, says that owners indicate that “we want this disciplined approach to what we’re doing. But then when it comes time to making that hard decision, they say, ‘I don’t want any part of this.’”

He compares the decision-making process, with its inevitable successes and failures, to riding on a big and terrifying roller coaster. He discusses the ideal owner: “I need someone who’s going to want to get on the roller coaster with me knowing that it’s not always going to be fun. There are going to be parts of the roller coaster that are going to be scary, that are going to be uncomfortable, but hopefully at the end of the ride when we get off, you’re going to want to say, let’s do that again.”<sup>22</sup>

Successful long-term decision makers, including investors, are familiar with the ups and downs that come with a successful long-term record. John Maynard Keynes, an economist, wrote this about long-term investors: “For it is in the essence of his behaviour that he should be eccentric, unconventional and rash in the eyes of average opinion. If he is successful, that will only confirm the general belief in his rashness; and if in the short run he is unsuccessful, which is very likely, he will not receive much mercy. Worldly wisdom teaches that it is better for reputation to fail conventionally than to succeed unconventionally.”<sup>23</sup>

We posit that teams and organizations are willing to experiment with new approaches when they have been very unsuccessful or highly successful (see exhibit 6). Loss aversion is less of an issue following a stretch of failure because there is little room to get worse. Consistent with this is the notion that underdogs should try new and unusual strategies in order to increase variance when they compete with a stronger team that is the favorite to win.<sup>24</sup>

## Exhibit 6: The Pattern of Experimentation



Source: Counterpoint Global. For illustrative purposes only.

Winning teams are also freer to experiment because they have accumulated goodwill with the fans, media, and owners that provides cover for greater risk-taking. Take the example of Bill Belichick, the head coach of the New England Patriots and one of the winningest coaches in NFL history. Belichick has been able to pursue the proper strategies on the field without worrying about career risk because his success has provided him with job security. He was more conventional when he was the head coach of the mediocre Cleveland Browns, where he won just 45 percent of his games.<sup>25</sup>

- 2. Status quo bias.** Classic economic theory suggests that decision makers identify their possible options and select the one with the highest value. However, research shows that people have a bias in favor of the status quo, continuing to do what they are doing, even when better alternatives exist.<sup>26</sup> This is as true for organizations as it is for individuals.

A related point is decision makers often favor inaction to action. This is called omission bias. In experiments, subjects preferred doing nothing over doing something even when doing nothing was associated with change. This bias toward inaction relates to loss aversion. Change can lead to gains or losses and decision makers prefer to do nothing because the potential losses loom larger than the gains. Decision makers and onlookers tend to treat the outcomes of inaction as neutral and regard the outcomes of action as positive if they are perceived to be better than inaction and negative if they are worse than the counterfactual associated with doing nothing.<sup>27</sup>

One of the psychological challenges with innovation, especially in sports, is that prior teams that have been successful have not used the new techniques. Morey points out that coaching is like a guild, with perceived wisdom passed from one generation to the next. This also shapes player training. Trying new approaches, even if supported analytically, goes against past success, conventional wisdom, and what the players have been taught to do.<sup>28</sup>

The endowment effect describes the tendency to value what you have higher than something equivalent that you do not have. This is a problem if a team is trying to get the most value from players based on the

team's payroll. One analysis of the NFL showed that teams overvalued players on the roster when they extended their contracts or resigned them relative to when they acquired free agents (albeit both had negative expected value).<sup>29</sup>

In economics, a sunk cost is one that has been incurred and is unrecoverable. Proper decision making ignores sunk costs and focuses on the future. But teams struggle to do that. For example, NBA teams tend to play their high-round draft picks more than they should and keep them on the roster longer than their results warrant.<sup>30</sup> The best teams keep a steady eye on the price and value of their portfolio of players. Of course, the challenge is that price is largely set and value is probabilistic.

- 3. Sample size.** One of the biggest impediments to change is that many tactics that are supported by analytics don't work all the time. The key idea is that when drawing a sample from a population of outcomes, there is large variation in small sample sizes and small variation in large sample sizes.<sup>31</sup> As a result, even when something is correct to do on average, small sample sizes can have outcomes far from average, sowing doubt for believers and nonbelievers alike.

Exhibit 2, which shows that 3-point shots have a higher expected value than 2-point shots, is based on the success rate of roughly 1.4 million 3-point attempts and 6.5 million 2-point tries. The results can vary a lot from the averages over any stretch of a game, for a complete game, or even for a series. For instance, Steph Curry, one of the greatest shooters in the history of the NBA, made 13 of his 17 3-point attempts in a game in 2016 and 0 of his 11 attempts in a game a year later. Combine those games and you get close to his career 3-point shooting percentage of 43.3 percent.

Regression toward the mean is a statistical concept that says that outcomes far from the average are followed by outcomes with an expected value closer to the average. It is a very tricky concept that has confused even prominent academics.<sup>32</sup> Teams can make poor decisions when they see outliers and fail to consider a sufficient sample of outcomes.

One example is firing a coach. Typically, teams fire their coach after a poor stretch of performance. Sometimes those sackings are the result of poor coaching and other times they reflect bad luck.<sup>33</sup> Regression toward the mean tells us that in cases where the firing is because of poor luck, the team will do better after the change independent of the coaching decision. An analysis of the four major sports in the U.S. shows that teams improve after a coaching change.<sup>34</sup>

One of the most important lessons for decision making is that when both skill and luck contribute to the outcome, you should assess the quality of the decision based on the process by which it was made rather than on the outcome. This may seem counterintuitive, especially in the world of professional sports where winning is the unambiguous objective.

But a focus on process is essential for at least two reasons. The first is practical: over the long run, a good process leads to good outcomes. The key insight is that sometimes an organization can make the correct strategic or tactical decision but have an outcome that is unsatisfactory as the result of bad luck. This happens in a world of uncertainty, where the desired outcome occurs only some percentage of the time. In these cases, the organization must have the fortitude to stick with the decision-making framework.

Avoiding outcome bias is the second reason that process is so important. Outcome bias occurs when we assess the quality of the decision based on the outcome rather than the process. It is problematic because good decisions can lead to bad outcomes and bad decisions can lead to good outcomes. When you focus

exclusively on outcomes in a world where luck and skill operate, you fail the framework and risk losing the discipline that a robust decision-making process offers.

Outcome bias brings us back to sample size. A good process and a bad outcome are painful for any individual event. But it is important to remember that the decision provided the best expected outcome. If you have done everything you can to make a good decision, it is best to adopt an attitude of equanimity about the short-term outcome.

A discussion of sample size naturally leads to the issue of time horizon.

## The Importance of Time Horizon

Elliott Jaques was an academic and consultant who studied managerial organization.<sup>35</sup> One of his observations is that there are different time spans for members of an organization. He called the goal and timing of completing a task “what by when,” and he observed that some employees operate on a short time scale and others on a long one. Incentives can become misaligned when time spans conflict.

One rough way to think about time span is tenure with an organization. Exhibit 7 shows the average and median number of seasons with a team for players, coaches, general managers, and owners in the NBA from the 1976/77 through the 2019/20 season. Players are with a team for just under 2 seasons on average, coaches 2.5, general managers nearly 5, and owners for about 11. The results are similar for other sports.<sup>36</sup> Recognizing that all participants have an imperative to win, you would expect that players and coaches have a shorter time horizon than general managers and owners.

### Exhibit 7: Average Number of Seasons with an NBA Team

	Players	Coaches	General Managers	Owners
<b>Average</b>	1.9	2.5	4.9	10.9
<b>Median</b>	1.4	2.0	3.5	7.5

Source: *FiveThirtyEight*; *RealGM*.

Note: Includes non-active players, coaches, GMs, and owners, 1976–77 to 2019–2020.

The experience of the New York Jets, an NFL franchise, during the 2020 season is an example of potential incentive misalignment based on time span. In the NFL, as with other leagues, the teams with the worst records are eligible to make among the earliest selections in the following year’s amateur draft. Further, Trevor Lawrence, a coveted quarterback at Clemson University, was projected to be the first pick in the 2021 draft. Analysis shows that the quarterback is the most important member of an NFL franchise, followed by the head coach, general manager, and owner.<sup>37</sup>

The Jets had lost the first 13 of their 16 scheduled games and losing their final 3 would have given them the top pick, allowing them to select Lawrence. From the point of view of the organization it would make sense to go winless and draft a player with the potential to put the franchise in a position to win for a long time. On the other hand, players and coaches are taught to compete and win each week, and the stigma of a winless season is strong. The Jets won 2 of their last 3 games and hence did not get the top draft pick. This is a case where conflicting time spans is clear.

Players are the main determinant of success in any sport. The distribution of player longevity in professional leagues is heavily skewed. Most players have very short careers and a handful have long careers, which makes

measures such as average or median tenure misleading. For example, 3 percent of NBA players have a career length of less than 12 total minutes of playing time.<sup>38</sup> It stands to reason that the vast majority of players focus on the here and now.

Coaches have more longevity than players. Coaches matter to success, albeit their impact varies a great deal by sport.<sup>39</sup> They implement an organization's framework for winning, make in-game decisions, and manage player personalities. The nature of the game has a large effect on how important coaches are. In the NBA, for instance, player talent tends to be more important than the style of play over time. At one point, the Houston Rockets evaluated the effectiveness of their set of offensive plays and found that "R," which stood for random, was one of the best.<sup>40</sup>

In some sports, most prominently baseball and basketball, responsibility for the organizational framework has shifted over time from the coach to the front office, which is informed by analytics. This means that coaches have less discretion to stray from what is shown to contribute to wins. Examples include the rise in 3-point shooting in the NBA and the placement of defensive players on the baseball field in order to limit the offensive potential of an opponent.

In other sports, including American football and hockey, the coaches continue to be the prime decision makers and the analytics are less prominent. NFL coaches are important in part because they tell every player where to start on every play. In particular, the link between the head coach and starting quarterback is significant. But change is likely in these sports as better data, including the tracking of player movement, become available. For instance, the National Hockey League (NHL) did not implement "Puck and Player Tracking" technology until 2020.

The job of a general manager is to assemble a team that can compete for a championship. The job is challenging for a number of reasons. Athletes tend to follow an aging curve, with the performance improving until a peak age and then declining after that.<sup>41</sup> Further, younger players who have yet to demonstrate their worth tend to make less money than older ones who are more established. Ideally, the GM builds a roster of young, relatively inexpensive, and improving players.

This can be a painful process because the likely performance of veterans is easier to project than untested rookies. Fans also know and love the successful veterans. Long-term success requires the ability to project player performance, which is a classic exercise in decision making under uncertainty.

One way to rebuild a franchise is to get rid of expensive, aging veterans and bring in cheap, young players. This commonly leads to temporarily poor results that in turn provide higher picks in the amateur draft. Teams seeking to rebuild must often trade poor results in the short term in order to build a winning franchise in the long term.

This is where time horizon conflicts can be acute. Owners, players, coaches, and fans naturally want a team that wins now. Building a team is a process that takes time, and performance almost always has to deteriorate before it can improve. Some teams attempt to buy some time with their fans by signaling that they intend to rebuild.<sup>42</sup> In other cases, the ownership struggles to survive the process.<sup>43</sup>

Time horizon is also a function of where a franchise is in its life cycle. For example, a team that is in a position to compete for a championship may add relatively expensive and short-term players to close any skill gaps.

Success as a GM requires smarts and alignment. Smarts captures the ability to assimilate a lot of information and to make proper decisions within the framework to provide the best chance of long-term success. Indeed,

more educated GMs tend to be more successful than less educated ones.<sup>44</sup> Investing in players is similar to investing in companies in that the range of potential outcomes can be wide.

Alignment indicates that the whole organization buys into a philosophy and framework. Research shows that match quality, which measures fit between abilities and the nature of the work, is crucial.<sup>45</sup> One important dimension of alignment is the decision-making process. To tie this to the literature on diversity, the goal is to have high cognitive diversity, which reflects lots of different points of view, and low values diversity, which indicates a unity of purpose.<sup>46</sup> Audits of decisions should focus on how they were made rather than solely on how they turned out.

Owners should have the longest time horizon in theory. But many are not impervious to impetuous decision making. Individuals who have earned enough money to buy a sports franchise have been very successful in one domain and understandably have the sense that their decision-making skills will carry over to another domain. Further, owners are very visible in the community and therefore feel pressure from the media and fans.

Organizational alignment starts at the top. Great owners bring in talented front office employees who develop and execute a framework to win. This can take time and patience and does not come without ups and downs. Those with experience in investing, and hence skill in decision making under uncertainty, have become more prominent in team ownership.

## What Sports Teams Can Do to Learn Faster (and Change)

The recommendations for becoming a better learning organization are the opposite of the impediments to change. Here are some ideas:

- **Align behind what wins.** This has analytical and organizational components. Professional sports leagues are highly competitive, so it is essential to analyze ways to gain an advantage that are within the control of management, coaches, and players. The lag in adopting practices that contribute to winning prompted this discussion. Proper alignment includes a commitment to lead, rather than lag, in initiatives that contribute to wins.
- **Explain the why.** Effective communicators, which include front office executives, coaches, and teachers of any kind, go beyond saying what to do and explain why something works. This is especially important when strategies or tactics are inconsistent with the conventional wisdom. An additional hurdle is that some practices require sufficient sample sizes to prove their worth. One method to communicate the value of a strategy is to use visualization to show larger sample sizes. Shot charts such as the one in exhibit 4 and spray charts that show a hitter's pattern when putting a ball into play illustrate this concept.
- **Refine talent assessment.** This concept has two elements. First is to identify the handful of skills a player must master to be an effective member of the team. Bill Walsh, a head coach for the champion San Francisco 49ers and a member of the NFL Hall of Fame, suggested this was a source of advantage. He said, "We have five or six skills or techniques that we want each of our players to be able to use in carrying out his assignment, where our opponents usually will have only one or two." Second is the degree to which those skills can be taught and developed. Walsh continued, "Being prepared starts with identifying the essential skills our team needs to compete effectively. The next step is to create a format to teach those skills."<sup>47</sup> These two steps of assessment are valuable for identifying new players and evaluating those currently on the team.

- **Focus on process and feedback.** It is important to emphasize the method used to make decisions in fields where a wide range of outcomes can occur. The quality of the outcomes is sometimes separate from the quality of the decisions as the result of skill, luck, and error. But over the long term, good decisions lead to good outcomes and a good decision-making process will beat a bad one.

Part of the auditing process is keeping track of how the organization made decisions and gathering feedback. Teams in all sports create a list of players they would like to draft in order from most to least attractive. Drafting is the most cost-effective way to build a team but is inherently tricky because it entails projecting the performance of a young athlete. Further, much has been made of the tension between traditional scouts, who rely more on the eye and gut feelings, and analytics types, who crunch the numbers. Comparing past projections with actual outcomes provides essential feedback that can help improve the process.<sup>48</sup>

- **Take advantage of differing time horizons.** Building a team is similar to building an investment portfolio. Portfolio managers try to buy businesses for less than they are worth. Likewise, GMs try to acquire players who will perform well for the salary they are paid. Teams that are keen to perform well in the short term sometimes overpay for projected performance. This happens most often at the two extremes of the player life cycle: during the draft and with seasoned veterans.

The draft is the best way to create surplus value, defined as the value of a player's performance minus their compensation. Higher draft picks are on average better players than lower draft picks, but they also get paid more. In the early 1990s, Mike McCoy, a partial owner and executive at the Dallas Cowboys, developed a chart to estimate trade values for draft picks. For example, the number 1 pick has a value of 3,000, the 7<sup>th</sup> pick 1,500, and the 40<sup>th</sup> pick 500. Despite its lack of empirical grounding, the chart has been widely used in the league and it explains actual trades well.<sup>49</sup>

Richard Thaler and Cade Massey, a professor at the University of Pennsylvania who studies judgment under uncertainty, analyzed the NFL draft using surplus value. They found that the chart is inaccurate and that the surplus value of the first pick in the second round (33<sup>rd</sup> pick overall) is higher than the first pick. In fact, average surplus value in the second round exceeds that in the first round because the performance value declines at a rate slower than compensation.

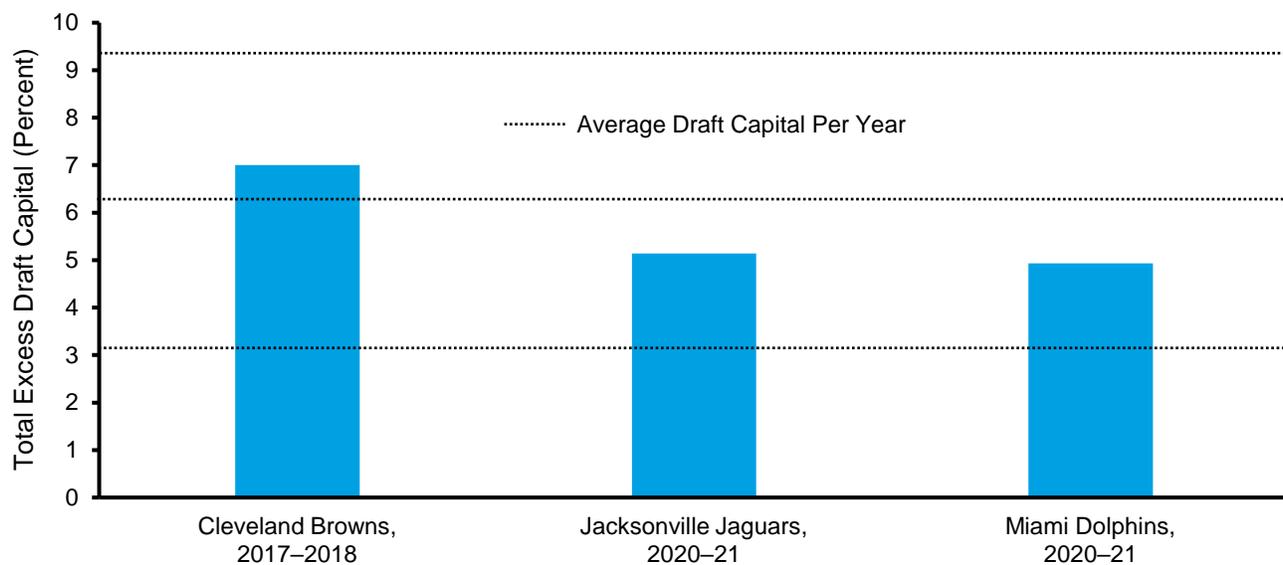
They also calculated the probability that a player is better than the next player drafted at the same position. For example, what are the odds that a wide receiver selected with the 6<sup>th</sup> pick is better than the wide receiver chosen with the 10<sup>th</sup> pick? The answer is 52 percent, essentially a coin toss. In other words, it is really hard to identify talent. Add rules of thumb about the perceived value of draft picks across time, such as a third-round pick this year is equivalent to a second-round pick next year, and it's easy to see how teams can add value by focusing more intently on surplus value.

The Cleveland Browns are a recent example of a team that focused on the draft to build value. They were able to create substantial draft capital through trades of picks and players, prudent management, and some seasons with poor winning percentages. A value for each of their draft picks can be estimated using the Draft Value Chart developed by Chase Stuart, an analyst who owns the website Football Perspective. Stuart's chart is more accurate than McCoy's.

The Browns accrued 13.25 percent of the total draft capital from 2017–2018. To put that in context, the average annual draft capital per team is 3.125 percent (100 percent ÷ 32 teams), which means the average

draft capital for 2 seasons is 6.25 percent ( $2 \times 3.125$ ). The additional 7.0 percentage points of draft capital ( $13.25 - 6.25$ ) the Browns accumulated was equivalent to more than two extra drafts ( $7.0 \div 3.125 = 2.2$ ). The Jacksonville Jaguars and the Miami Dolphins appear to have followed this approach in recent years. Each team has accumulated the equivalent of 1.6 extra drafts over the past two years (see exhibit 8).

### Exhibit 8: Total Excess Draft Capital Accrued by Three NFL Teams in Recent Years

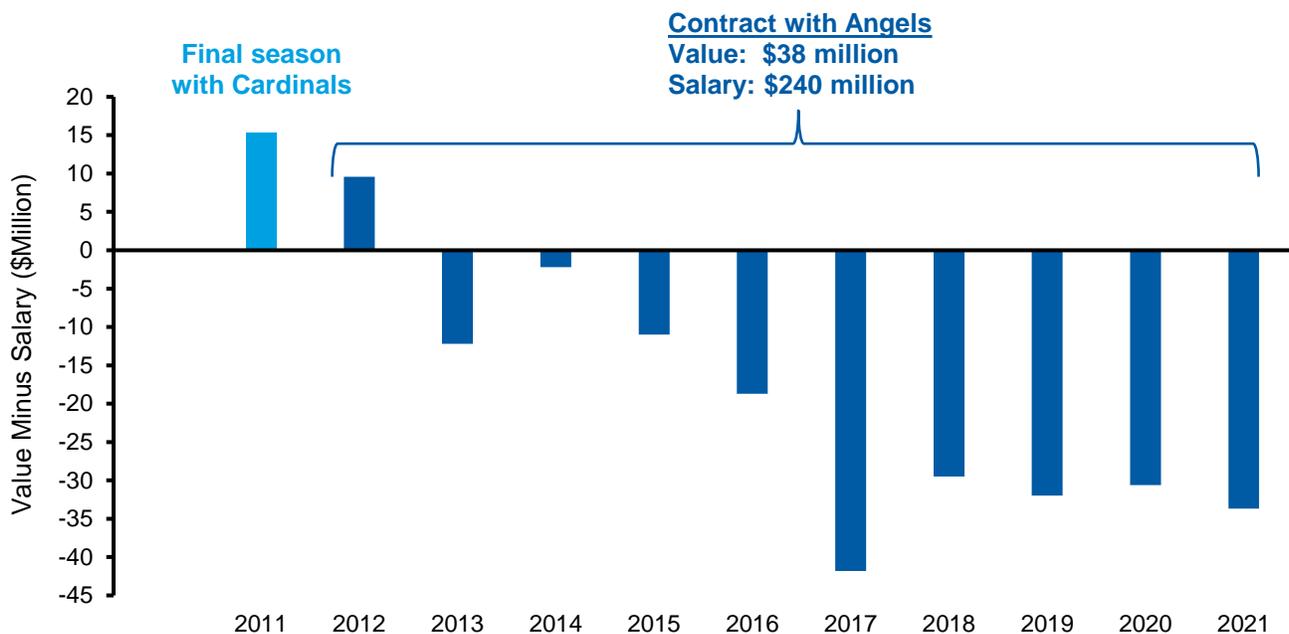


Source: Sports Reference LLC, "NFL and AFL Draft History," *Pro-Football-Reference.com-Pro Football Statistics and History*, [www.pro-football-reference.com](http://www.pro-football-reference.com), August 2021.

Overpaying for projected performance also happens with established veterans. One intuitive means to boost organizational performance is to add a superstar. This is a hard way to add value in any organization.<sup>50</sup> In sports it is difficult because veterans are often on the downside of their performance curves and command a high salary. Short-term deals can make sense, but long-term contracts commonly have negative surplus value for the team.

Albert Pujols is a baseball player who played for the St. Louis Cardinals during his peak years and will almost certainly be elected to the Hall of Fame. Following the 2011 season, he was 31 years old and signed a 10-year, \$240 million deal with the Los Angeles Angels. Exhibit 9 shows that the value he contributed was about \$40 million during that time, creating a roughly \$200 million deficit in surplus value. While Pujols may have added to the Angels in other ways, it is clear that his price exceeded his value.

Exhibit 9: Value minus Salary for Albert Pujols, 2011–2021



Source: FanGraphs.com.

- Don't read the newspaper.** This is a generic admonishment against paying too much attention to the media and fans, groups that tend to amplify outcomes relative to a decision-making framework. In domains with uncertainty, good decisions precede poor results an uncomfortable percentage of the time. Poor decisions might also pay off. Focus on what you can control, make decisions that give the team the best chance to win, and attempt to handle triumphs and setbacks with equanimity. As John Wooden, the legendary coach of UCLA basketball, said, "All of life is peaks and valleys. Don't let the peaks get too high and the valleys too low."<sup>51</sup>

## What Investment Management Organizations Can Do to Learn Faster

This report focused on what contributes to wins in sports and the barriers to change that make teams slow to adopt those strategies. But the concepts apply to all organizations where the results of decisions occur with some probability. Here are some observations about what investment management organizations can do to learn and adapt:

- **Think about sources of edge in the investment process.** Investment management is a very competitive field, so it is useful to start by identifying potential inefficiencies and developing a process to take advantage of them. Inefficiencies can be assigned to broad categories, but there are often costs associated with capturing the opportunities they present.<sup>52</sup> Note that strategies can have different cadences. Renaissance Technologies, which seeks small gains on frequent trades, and Berkshire Hathaway, which looks for large profits on a relatively small number of investments, have been successful over time.

Identifying edge is crucial both because it provides a basis for active management, and the sources of edge can change over time. Similar to sports teams, sources of edge explain why a process is likely to work in the long term.

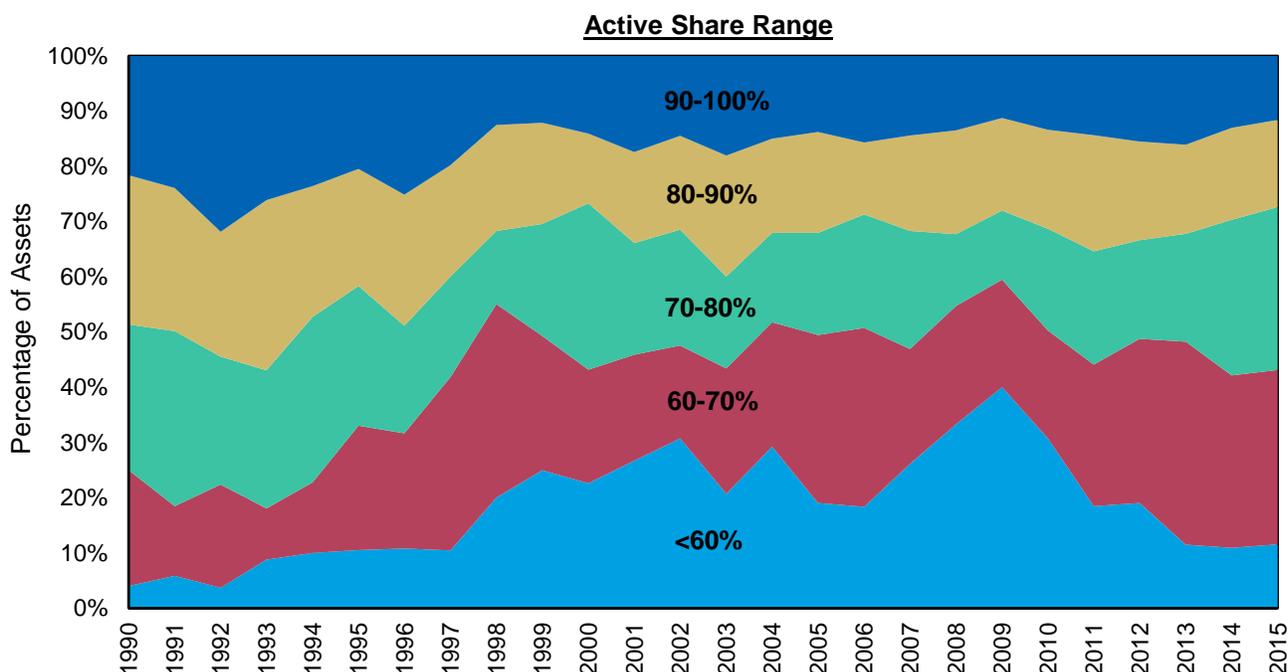
- **Organizational alignment.** This has a couple of elements. The first is to align the activities within the organization to the perceived source of edge. The goal is to make all activities within the firm congruent with the espoused method to succeed.<sup>53</sup> Part of this initiative is to put into place methods to allow the investment team to remain focused on the process.

The second is the client base. There is a lot of short-term noise in investment results, which means that even skillful managers have realized extended periods of underperformance relative to a benchmark. Having clients who understand the process and are willing to ride out the inevitable drawdowns is crucial to executing on a strategy. Research suggests that hiring managers based solely on recent past performance can be a challenge.<sup>54</sup>

- **Take a long-term view.** Systematic and discretionary strategies have earned similar returns over time.<sup>55</sup> But both approaches, no matter the turnover of the securities in the portfolio, require a long-term orientation. The reason is that the ratio of signal to noise is very low in the short run and reveals itself only over the long run.<sup>56</sup> Even a differentiated and effective strategy requires patience.

There is research that supports this point. For example, active share, a measure of how different a portfolio is relative to its benchmark, has been increasing since the financial crisis (see exhibit 10). Funds that combine high active share and low turnover deliver excess returns on average.<sup>57</sup> Further, the holdings of funds that trade frequently tend to generate excess returns in the short run, but the holdings of funds with low turnover add value only over longer time horizons.<sup>58</sup>

## Exhibit 10: Breakdown of Active Share for Mutual Funds, 1990–2015



Source: Antti Petajisto, see [www.petajisto.net/data.html](http://www.petajisto.net/data.html); Martijn Cremers, “Active Share and the Three Pillars of Active Management: Skill, Conviction and Opportunity,” *Financial Analysts Journal*, Vol. 73, No. 2, Second Quarter 2017, 61-79; Counterpoint Global.

Most of us learn to associate effort with results. In investing, effort is better described as thinking than as acting. This is true for individuals and institutions. Similar to many other activities in life, investing can be described as “hours of boredom punctuated by moments of terror.” Limited activity for long-term investors tends to be the best course. At times, the market presents opportunities for action. But on balance, doing less can leave an investor with more.

- **Spend a lot of time on people.** Professional sports and investment management are similar in that both include a group of people coming together to perform at a high level in a very competitive domain. Sports teams attempt to construct a roster with the requisite skills for success in the face of constraints. Investment management organizations do much the same. Success generally requires congruence between process and people. Therefore, an understanding of the skills necessary to compete effectively is crucial. Developing a thoughtful inventory of skills allows for effective hiring and performance evaluation.
- **Strive to learn constantly.** In sports, the boundaries and rules are generally stable. The objective is to maximize performance given the constraints of the system. In investing, the landscape continuously changes. This includes the evolution of businesses, the nature of investment management, and the profile of investors. As a result, successful investors have little choice but to learn. This means being willing to ask naïve questions and to be mindful of the pitfalls of status quo bias. In investment management, reading is probably the best way to acquire knowledge. As Charlie Munger, vice chairman of Berkshire Hathaway, has said, “I don’t think you can get to be a really good investor over a broad range without doing a massive amount of reading.”<sup>59</sup>

## Conclusion

Successful organizations seek to learn and adapt over time in order to enable quality decisions. Good long-term results require developing strategies and tactics that add value and having an ability to execute them. An effective decision-making framework combines both elements.

One of the main lessons from this discussion is that organizations can be slow to adopt certain approaches even when analysis reveals that they add value. Reasons for this include the fact that losses often feel worse than comparable gains and the inclination to maintain the status quo. But perhaps the biggest factor is that in any field where a good decision leads to a good outcome only some percentage of the time, those who make the right decisions may suffer poor outcomes in the short run and hence look wrong.

This limited link between decisions and outcomes plants doubt in two ways. The first is the decision maker must question whether his or her process does add value. The second is that naysayers can point at short-term failure as evidence of the futility of the strategy. Overcoming these hurdles is psychologically challenging. The best way to do so is to have organizational alignment behind a commitment to improvement, learning, transparency, and accountability.

*We offer special thanks to our summer intern, Kevin Villafranca, who is a student at Georgetown University. Kevin made a substantial contribution to this piece, in particular with gathering and analyzing data for the NBA. We appreciate your contribution, Kevin.*

**Please see Important Disclosures on pages 22-23**

## Endnotes:

- <sup>1</sup> For a good discussion of the motives of professional sports leaders, see George Foster, Norm O'Reilly, and Antonio Dávila, *Sports Business Management: Decision Making Around the Globe, Second Edition* (New York: Routledge, 2021), 159-162.
- <sup>2</sup> Charles D. Ellis, "Will Business Success Spoil the Investment Management Profession?" *Journal of Portfolio Management*, Vol. 27, No. 3, Spring 2001, 11-15.
- <sup>3</sup> Samuel Gorovitz and Alasdair MacIntyre, "Toward a Theory of Medical Fallibility," *Journal of Medicine and Philosophy: A Forum for Bioethics and Philosophy of Medicine*, Vol. 1, No.1, January 1976, 51-71.
- <sup>4</sup> Benjamin A. Rodwin, Victor P. Bilan, Naseema B. Merchant, Catherine G. Steffens, Alyssa A. Grimshaw, Lori A. Bastian, and Craig G. Gunderson, "Rate of Preventable Mortality in Hospitalized Patients: A Systematic Review and Meta-analysis," *Journal of General Internal Medicine*, Vol. 35, No. 7, July 2020, 2099-2106.
- <sup>5</sup> Atul Gawande, *The Checklist Manifesto: How to Get Things Right* (New York: Metropolitan Books, 2009).
- <sup>6</sup> For example, investment firms have investors and the business side. Money managers also have a system of strategies and tactics that seeks to generate excess returns. Talent is very important. Firms can hire investors out of school (draft) or hire them from other firms (free agency). Successful firms have congruence between their investment process, people, and objectives.
- <sup>7</sup> George Foster, Norm O'Reilly, and Zachary Naidu, "Playing-Side Analytics in Team Sports: Multiple Directions, Opportunities, and Challenges," *Frontiers in Sports and Active Living*, No. 3, July 2021.
- <sup>8</sup> Kathryn Johnston and Joseph Baker, "Waste Reduction Strategies: Factors Affecting Talent Wastage and the Efficacy of Talent Selection in Sport," *Frontiers in Psychology*, Vol. 10, January 2020.
- <sup>9</sup> This distinction is commonly referred to as strong link and weak link sports. See Chris Anderson and David Sally, *The Numbers Game: Why Everything You Know About Soccer Is Wrong* (New York: Penguin Books, 2013), 197-222. They identify soccer as a weak link game. This framework is based on Michael Kremer, "The O-Ring Theory of Economic Development," *Quarterly Journal of Economics*, Vol. 108, No. 3, August 1993, 551-575.
- <sup>10</sup> Jeremy Cluff, "NFL's Highest Paid Players in 2021: Quarterbacks Dominate Ranking of NFL Players by Salary," *Arizona Republic*, March 29, 2021.
- <sup>11</sup> Ben Lindbergh and Travis Sawchik, *The MVP Machine: How Baseball's New Nonconformists Are Using Data to Build Better Players* (New York: Basic Books, 2019), 178.
- <sup>12</sup> Richard Thaler, "The Sports Learning Curve: Why Teams are Slow to Learn and Adapt," *Presentation at the MIT Sloan Sports Analytics Conference*, March 6, 2020. See [www.sloansportsconference.com/event/the-sports-learning-curve-why-teams-are-slow-to-learn-and-adapt](http://www.sloansportsconference.com/event/the-sports-learning-curve-why-teams-are-slow-to-learn-and-adapt); Mike Band, "Introducing the Next Gen Stats Decision Guide: A new analytics tool for fourth down, two-point conversions," *Next Gen Stats*, September 7, 2021. See [www.nfl.com/news/introducing-the-next-gen-stats-decision-guide-a-new-analytics-tool-for-fourth-down](http://www.nfl.com/news/introducing-the-next-gen-stats-decision-guide-a-new-analytics-tool-for-fourth-down).
- <sup>13</sup> Mike Ozanian "World's Most Valuable Sports Teams 2021," *Forbes*, May 7, 2021. See [www.forbes.com/sites/mikeozanian/2021/05/07/worlds-most-valuable-sports-teams-2021/?sh=1bc23f6c3e9e](http://www.forbes.com/sites/mikeozanian/2021/05/07/worlds-most-valuable-sports-teams-2021/?sh=1bc23f6c3e9e) and Mike Ozanian, "The NFL's Most Valuable Teams 2021: Average Team Value Soars To \$3.5 Billion As League Shrugs Off Pandemic Year," *Forbes*, August 5, 2021. See [www.forbes.com/sites/mikeozanian/2021/08/05/the-nfls-most-valuable-teams-2021-average-team-value-soars-to-35-billion-as-league-shrugs-off-pandemic-year/?sh=4068c612654e](http://www.forbes.com/sites/mikeozanian/2021/08/05/the-nfls-most-valuable-teams-2021-average-team-value-soars-to-35-billion-as-league-shrugs-off-pandemic-year/?sh=4068c612654e).
- <sup>14</sup> Donald L. Alexander and William Kern, "The Economic Determinants of Professional Sports Franchise Values," *Journal of Sports Economics*, Vol. 5, No. 1, February 2004, 51-66.
- <sup>15</sup> The 3-point shot was introduced the same year as Larry Bird and Earvin "Magic" Johnson started in the NBA. Per [www.basketball-reference.com](http://www.basketball-reference.com), Bird averaged 1.9, and Johnson 1.2, 3-point attempts per game during their careers. Steph Curry, one of the league's best players today, has averaged nearly 11 three-point attempts per game over the last five seasons.
- <sup>16</sup> Shaun Powell, "Doubt, disdain marked most NBA teams' first forays into 3-point land," *NBA.com*, February 21, 2017.
- <sup>17</sup> Kirk Goldsberry, *Sprawlball: A Visual Tour of the New Era in the NBA* (New York: Houghton Mifflin Harcourt, 2019).

- <sup>18</sup> Joshua Schwartzstein and Deepak Malhorta, "Rocket Science," *Harvard Business School Case Study N2-921-043*, January 20, 2021.
- <sup>19</sup> Zach Lowe, "Why are Teams Bored with Boards?" *ESPN.com*, January 5, 2016.
- <sup>20</sup> For example, see Eric Nehm, "Bucks' Aggressive New Approach to Crashing the Offensive Glass is Paying Off," *The Athletic*, January 21, 2021; Todd Whitehead, "More Lessons from NBA Rebound Tracking," *Nylon Calculus: FanSided*, January 28, 2020; and Michael Lynch, "Crash the Glass: Making a Case for Offensive Rebounding," *FastModel Sports*, April 18, 2019.
- <sup>21</sup> For instance, Mark Broadie, a professor of finance at Columbia Business School and a leader in golf analytics, notes that professional players are going for the green more often in 2 shots on par-5 holes, a strategy that the analysis of the data supports. Twenty years ago, pundits expected players to lay up to their favorite distance and criticized the players who seemed to be too aggressive. Nearly all players now go for the green in two shots, except for when individual circumstances warrant a different approach.
- <sup>22</sup> Pat McManamon, "Paul DePodesta: Criticism of Browns' New Ways 'Part of the Fun,'" *ESPN.com*, March 16, 2016.
- <sup>23</sup> John Maynard Keynes, *The General Theory of Employment, Interest, and Money* (New York: Harcourt, Brace and Company, 1936), 138.
- <sup>24</sup> Michael J. Mauboussin, *The Success Equation: Untangling Skill and Luck in Business, Sports, and Investing* (Boston, MA: Harvard Business Review Press, 2012), 178-185.
- <sup>25</sup> Tobias J. Moskowitz and L. Jon Wertheim, *Scorecasting: The Hidden Influences Behind How Sports Are Played and Games Are Won* (New York: Crown Archetype, 2011), 47-51. Michael Lombardi, a media analyst and former American football executive, recently discussed the pressure NFL head coaches feel: "They know they have two or three years to succeed at the job, so everything is based on situational values, not sustainable values. So they make every decision based on situations, not on how I can sustain something. Cause the owners are so willing to make changes so rapidly." See "Episode 012: The Other Side of the Ball with Michael Lombardi," *The Decision Education Podcast*, August 25, 2021.
- <sup>26</sup> William Samuelson and Richard Zeckhauser, "Status Quo Bias in Decision Making," *Journal of Risk and Uncertainty*, Vol. 1, No. 1, March 1988, 7-59.
- <sup>27</sup> Ilana Ritov and Jonathan Baron, "Status-Quo and Omission Biases," *Journal of Risk and Uncertainty*, Vol. 5, No. 1, September 1992, 49-61.
- <sup>28</sup> Schwartzstein and Malhorta, "Rocket Science."
- <sup>29</sup> Steven Ruiz, "Proof That Signing NFL Free Agents is More Cost-Effective than Keeping Homegrown Players," *USA Today*, March 15, 2019.
- <sup>30</sup> Barry M. Staw and Ha Hoang, "Sunk Costs in the NBA: Why Draft Order Affects Playing Time and Survival in Professional Basketball," *Administrative Science Quarterly*, Vol. 40, No. 3, September 1995, 474-494.
- <sup>31</sup> Howard Wainer, "The Most Dangerous Equation," *American Scientist*, May-June 2007, 249-256.
- <sup>32</sup> Stephen M. Stigler, "Regression Towards the Mean, Historically Considered," *Statistical Methods in Medical Research*, Vol. 6, No. 2, April 1997, 103-114.
- <sup>33</sup> Raphael Flepp and Egon Franck, "The Performance Effects of Wise and Unwise Managerial Dismissal," *Economic Inquiry*, Vol. 59, No. 1, January 2021, 186-198. For a discussion on threshold effects and firing decisions, see Lars J. Lefgren, Brennan Platt, Joseph Price, Samuel Higbee, "Outcome Based Accountability: Theory and Evidence," *Journal of Economic Behavior and Organization*, Vol. 160, April 2019, 121-137.
- <sup>34</sup> Jon Bois, "Should You Fire Your Coach Midseason? A Statistical Breakdown," *SB Nation*, April 10, 2012.
- <sup>35</sup> Elliott Jaques, *Requisite Organization: A Total System for Effective Managerial Organization and Managerial Leadership for the 21<sup>st</sup> Century* (Fleming Island, FL: Cason Hall & Co, 2006).
- <sup>36</sup> Foster, O'Reilly, and Dávila, *Sports Business Management*, 175-176.
- <sup>37</sup> Boris Groysberg, Evan M.S. Hecht, and Abhijit Naik, "Who's the Most Important Member of an NFL Franchise?" *Harvard Business Review*, April 25, 2019.
- <sup>38</sup> Alexander M. Petersen, Woo-Sung Jung, Jae-Suk Yang, and H. Eugene Stanley, "Quantitative and Empirical Demonstration of the Matthew Effect in a Study of Career Longevity," *PNAS*, Vol. 108, No. 1, January 4, 2011, 18-23.
- <sup>39</sup> Christopher R. Berry and Anthony Fowler, "How Much Do Coaches Matter?" *MIT Sloan Sports Analytics Conference No. 12549*, March 2019.

<sup>40</sup> Schwartzstein and Malhorta, "Rocket Science."

<sup>41</sup> There is a large literature on this topic. For example, see Nemanja Vaci, Dijana Cocić, Bartosz Gula, and Merim Bilalić, "Large Data and Bayesian Modeling—Aging Curves of NBA players," *Behavior Research Methods*, Vol. 51, No. 4, August 2019, 1544-1564.

<sup>42</sup> Examples include the Chicago Blackhawks (October 2020) and the New York Rangers (February 2018) in the NHL.

<sup>43</sup> See [www.espn.com/pdf/2016/0406/nba\\_hinkie\\_redact.pdf](http://www.espn.com/pdf/2016/0406/nba_hinkie_redact.pdf).

<sup>44</sup> Matthew Juravich, Steven Salaga, and Kathy Babiak, "Upper Echelons in Professional Sport: The Impact of NBA General Managers on Team Performance," *Journal of Sport Management*, Vol. 31, No. 5, September 2017, 466-479.

<sup>45</sup> Thomas L. P. R. Peeters, Steven Salaga, and Matthew Juravich, "Matching and Winning? The Impact of Upper and Middle Managers on Firm Performance in Major League Baseball," *Management Science*, Vol. 66, No. 6, June 2020, 2735-2751.

<sup>46</sup> Karen A. Jehn, Gregory B. Northcraft, and Margaret A. Neale, "Why Differences Make a Difference: A Field Study of Diversity, Conflict, and Performance in Workgroups," *Administrative Quarterly*, Vol. 44, No. 4, December 1999, 741-763.

<sup>47</sup> Richard Rapaport, "To Build a Winning Team: An Interview with Head Coach Bill Walsh," *Harvard Business Review*, Vol. 71, No. 1, January-February 1993, 111-120.

<sup>48</sup> Brayden Gerrard, "Measuring Success in The NBA Draft: Find the Best (and Worst) Drafting Teams Over the Last Ten Years," [towardsdatascience.com](http://towardsdatascience.com), July 23, 2020.

<sup>49</sup> Cade Massey and Richard H. Thaler, "The Loser's Curse: Decision Making and Market Efficiency in the National Football League Draft," *Management Science*, Vol. 59, No. 7, July 2013, 1479-1495. Of the chart, Cade Massey and Zach Drapkin write: "It is the default option and a coordination device. It turns out a coordination device is vital, given that there are 32 teams, ambiguously valued assets, time pressure, public deals, and professional reputations. These factors create the perfect recipe for adherence to a norm, any norm. As McCoy said in 2006, 'A standard list price protects you. Nobody gets skinned.'" See Cade Massey and Zach Drapkin, "The Fortune Teller's Trade Chart," [pff.com](http://pff.com), April 28, 2021.

<sup>50</sup> Boris Groysberg, *Chasing Stars: The Myth of Talent and the Portability of Performance* (Princeton, NJ: Princeton University Press, 2010).

<sup>51</sup> Beth Harris, "Sports Legends Scully, Wooden Share Stage at Charity Event," *Associated Press*, June 15, 2008.

<sup>52</sup> Michael J. Mauboussin, "Who Is on the Other Side?" *BlueMountain Investment Research*, February 12, 2019.

<sup>53</sup> Michael J. Mauboussin, Dan Callahan, and Darius Majd, "Form Follows Function: Organizational Structure and Investment Results," *Credit Suisse Global Financial Strategies*, July 8, 2016.

<sup>54</sup> Bradford Cornell, Jason Hsu, and David Nanigian, "Does Past Performance Matter in Investment Manager Selection?" *Journal of Portfolio Management*, Vol. 43, No. 4, Summer 2017, 33-43.

<sup>55</sup> Campbell R. Harvey, Sandy Rattray, Andrew Sinclair, and Otto Van Hemert, "Man vs. Machine: Comparing Discretionary and Systematic Hedge Fund Performance," *Journal of Portfolio Management*, Vol. 43, No. 4, Summer 2017, 55-69.

<sup>56</sup> Andrei Shleifer and Robert W. Vishny, "The Limits of Arbitrage," *Journal of Finance*, Vol. 52, No. 1, March 1997, 35-55.

<sup>57</sup> Martijn Cremers and Ankur Pareek, "Patient Capital Outperformance: The Investment Skill of High Active Share Managers Who Trade Infrequently," *Journal of Financial Economics*, Vol. 122, No. 2, November 2016, 288-306.

<sup>58</sup> Jules van Binsbergen, Jungsuk Han, Hongxun Ruan, and Ran Xing, "A Horizon-Based Decomposition of Mutual Fund Value Added Using Transactions," *SSRN Working Paper*, March 3, 2021.

<sup>59</sup> Janet Lowe, *Damn Right: Behind the Scenes with Berkshire Hathaway Billionaire Charlie Munger* (New York: John Wiley & Sons, 2000), 231.

## **DISTRIBUTION**

This communication is only intended for and will only be distributed to persons resident in jurisdictions where such distribution or availability would not be contrary to local laws or regulations.

MSIM, the asset management division of Morgan Stanley (NYSE: MS), and its affiliates have arrangements in place to market each other's products and services. Each MSIM affiliate is regulated as appropriate in the jurisdiction it operates. MSIM's affiliates are: Eaton Vance Management (International) Limited, Eaton Vance Advisers International Ltd, Calvert Research and Management, Eaton Vance Management, Parametric Portfolio Associates LLC, Atlanta Capital Management LLC, Eaton Vance Global Advisors Ltd, Eaton Vance Management International (Asia) Pte. Ltd.

This material has been issued by any one or more of the following entities:

### **EMEA:**

This material is for Professional Clients/Accredited Investors only.

In the EU, MSIM materials are issued by MSIM Fund Management (Ireland) Limited ("FMIL"). FMIL is regulated by the Central Bank of Ireland and is incorporated in Ireland as a private company limited by shares with company registration number 616661 and has its registered address at The Observatory, 7-11 Sir John Rogerson's Quay, Dublin 2, D02 VC42, Ireland. Eaton Vance materials are issued by Eaton Vance Global Advisors Ltd ("EVGA") which is registered in the Republic of Ireland with Registered Office at 70 Sir John Rogerson's Quay, Dublin 2, Ireland. EVGA is regulated by the Central Bank of Ireland with Company Number: 224763.

Outside the EU, MSIM materials are issued by Morgan Stanley Investment Management Limited (MSIM Ltd) is authorised and regulated by the Financial Conduct Authority. Registered in England. Registered No. 1981121. Registered Office: 25 Cabot Square, Canary Wharf, London E14 4QA.

In Switzerland, MSIM materials are issued by Morgan Stanley & Co. International plc, London (Zurich Branch) Authorised and regulated by the Eidgenössische Finanzmarktaufsicht ("FINMA"). Registered Office: Beethovenstrasse 33, 8002 Zurich, Switzerland.

Outside the US and EU, Eaton Vance materials are issued by Eaton Vance Management (International) Limited ("EVMIL") 125 Old Broad Street, London, EC2N 1AR, UK, which is authorised and regulated in the United Kingdom by the Financial Conduct Authority.

### **U.S.:**

**NOT FDIC INSURED | OFFER NO BANK GUARANTEE | MAY LOSE VALUE | NOT INSURED BY ANY FEDERAL GOVERNMENT AGENCY | NOT A BANK DEPOSIT**

**Hong Kong:** This document has been issued by Morgan Stanley Asia Limited for use in Hong Kong and shall only be made available to "professional investors" as defined under the Securities and Futures Ordinance of Hong Kong (Cap 571). The contents of this document have not been reviewed nor approved by any regulatory authority including the Securities and Futures Commission in Hong Kong. Accordingly, save where an exemption is available under the relevant law, this document shall not be issued, circulated, distributed, directed at, or made available to, the public in Hong Kong. **Singapore:** This document may not be circulated or distributed, whether directly or indirectly, to persons in Singapore other than to (i) an accredited investor (ii) an expert investor or (iii) an institutional investor as defined in Section 4A of the Securities and Futures Act, Chapter 289 of Singapore ("SFA"); or (iv) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA. This publication has not been reviewed by the Monetary Authority of Singapore. **Australia:** This publication is disseminated in Australia by Morgan Stanley Investment Management (Australia) Pty Limited ACN: 122040037, AFSL No. 314182, which accept responsibility for its contents. This publication, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act.

**Japan:** This document may not be circulated or distributed, whether directly or indirectly, to persons in Japan other than to (i) a professional investor as defined in Article 2 of the Financial Instruments and Exchange Act (“FIEA”) or (ii) otherwise pursuant to, and in accordance with the conditions of, any other allocable provision of the FIEA. This document is disseminated in Japan by Morgan Stanley Investment Management (Japan) Co., Ltd., Registered No. 410 (Director of Kanto Local Finance Bureau (Financial Instruments Firms)), Membership: the Japan Securities Dealers Association, The Investment Trusts Association, Japan, the Japan Investment Advisers Association and the Type II Financial Instruments Firms Association.

### **IMPORTANT INFORMATION**

The views and opinions are those of the author as of the date of preparation of this material and are subject to change at any time due to market or economic conditions and may not necessarily come to pass. Furthermore, the views will not be updated or otherwise revised to reflect information that subsequently becomes available or circumstances existing, or changes occurring, after the date of publication. The views expressed do not reflect the opinions of all investment teams at Morgan Stanley Investment Management (MSIM) or the views of the firm as a whole, and may not be reflected in all the strategies and products that the Firm offers.

Past performance is no guarantee of future results. Certain information herein is based on data obtained from third party sources believed to be reliable. However, we have not verified this information, and we make no representations whatsoever as to its accuracy or completeness. The views expressed in the books and articles referenced in this whitepaper are not necessarily endorsed by Morgan Stanley Investment Management.

The information herein is a general communications which is not impartial and has been prepared solely for information and educational purposes and does not constitute an offer or a recommendation to buy or sell any particular security or to adopt any specific investment strategy. The material contained herein has not been based on a consideration of any individual client circumstances and is not investment advice, nor should it be construed in any way as tax, accounting, legal or regulatory advice. To that end, investors should seek independent legal and financial advice, including advice as to tax consequences, before making any investment decision.

Charts and graphs provided herein are for illustrative purposes only. Any securities referenced herein are solely for illustrative purposes only and should not be construed as a recommendation for investment.

This communication is not a product of Morgan Stanley’s Research Department and should not be regarded as a research recommendation. The information contained herein has not been prepared in accordance with legal requirements designed to promote the independence of investment research and is not subject to any prohibition on dealing ahead of the dissemination of investment research.

MSIM has not authorised financial intermediaries to use and to distribute this document, unless such use and distribution is made in accordance with applicable law and regulation. Additionally, financial intermediaries are required to satisfy themselves that the information in this document is appropriate for any person to whom they provide this document in view of that person’s circumstances and purpose. MSIM shall not be liable for, and accepts no liability for, the use or misuse of this document by any such financial intermediary.

The whole or any part of this work may not be directly or indirectly reproduced, copied, modified, used to create a derivative work, performed, displayed, published, posted, licensed, framed, distributed or transmitted or any of its contents disclosed to third parties without MSIM’s express written consent. This work may not be linked to unless such hyperlink is for personal and non-commercial use. All information contained herein is proprietary and is protected under copyright and other applicable law.

Morgan Stanley Investment Management is the asset management division of Morgan Stanley.

This document may be translated into other languages. Where such a translation is made this English version remains definitive. If there are any discrepancies between the English version and any version of this document in another language, the English version shall prevail.