

The Competitive Balance of the Ryder Cup: The Key Factor for the Success of the Modern Era of this Competition¹

By Patrice Bouvet*

The objective of this article, using the example of recent editions of the Ryder Cup, is to discuss the importance of the concept of competitive balance as a factor explaining the interest shown by spectators and TV viewers in sports competitions. To this end, after having constructed indicators to calculate the ex-ante competitive balance of the last 20 editions of this competition, a comparison is made with the results (gaps) observed on the course. The conclusion, which may be of interest to sports economists, future organisers and technicians (captains), is that "the competitive balance does not explain everything". Other concepts need to be developed.

Keywords: *Ryder Cup, competitive balance, annual performance indicator, current performance indicator, competitive exceptionalit*

Introduction

"The Ryder Cup is a unique sporting event whose originality has elevated it above other more traditional competitions" (Callow 2018). For millions of golfers this competition has a special flavour (Pugh and Lord 2010). However, after the Second World War, the Ryder Cup almost died. Since then, unforgettable moments have forged the status of this competition at the heart of the history of world sport. Sacred destiny for a match that was initiated in all simplicity in the mid-1920s. What are the reasons for this global craze? Almost every golfer has his own answer. Beyond the enthusiasm generated by the public, the attraction of this competition can also be an object of study for the sports economics researcher. Reformulated with the vocabulary specific to this type of interrogation, the question then becomes: what are the key factors for the success of this competition?

The origin of the notion of key success factor can be found in a publication by Daniel (1961) in the Harvard Business Review. Today, this "concept" is most often used in a more general perspective to refer to the elements that decisively influence the results of an organization, an action, a competition, etc. (Scelles 2009). In the strategic domain, the ambition is most often to identify them upstream in order to properly orient the company's activity. In other areas, the objective is to identify them downstream to analyse and interpret the results obtained. Since Myrdal's work (1931), economists have in this case developed the habit of distinguishing between *ex-ante* and *ex-post* analyses. In sports economics, where possible, for example for the study of the impact of major sports events, the comparison of *ex-*

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¹Since 1979.

ante expected results with those observed *ex-post* is particularly interesting (Barget and Gougnet 2010). Often, the main obstacle to the development of this type of analysis is the difficulty of implementing them in practice. This is not the case for the Ryder Cup. In addition, to the question of the origin of the interest in the Ryder Cup, a "scientific" answer seems to be immediately available. This would lie in its competitive balance. There are two main reasons for this:

- this is the case for all sports competitions,
- since 1979, the organizers have been doing their utmost to try to equalize the opposing forces.

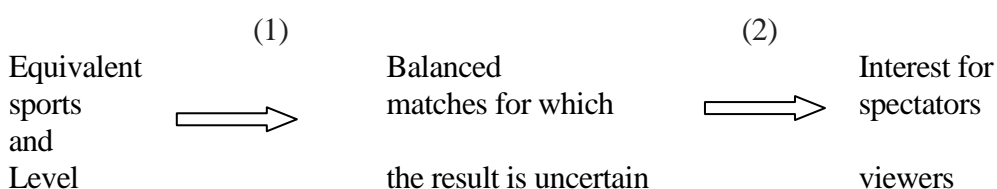
Therefore, perhaps even more so than for other sports competitions, the question arises with insistence: is competitive balance really the key factor for the success of modern editions of this competition?

Our objective is to provide answers to this question and more generally to discuss the importance of the concept of competitive balance, particularly in individual sports. To do this we will proceed in three steps. After having recalled the interest of the concept of competitive balance (1), we will propose intermediate indicators to evaluate it *ex-ante* during the last twenty editions of the Ryder Cup (2) which will finally allow us to draw many conclusions, in particular by putting in perspective the results obtained with those observed on the courses (3).

The Concept of Competitive Balance

Competitive Balance in Collective Sport

In sport economics, the following implication is generally accepted:



Intuitively, the reasoning is attractive. Obviously, when a high-performing team meets a much weaker team, with few exceptions, the result is clear. And the interest for the match is low, or in any case to be sought at another level. On the other hand, when two teams occupy a neighbouring position in a ranking and are therefore *a priori* close in level, it is difficult to predict the result, the more important "suspense" and the maximum interest. Historically, the premises of this reasoning have appeared in Rottenberg. In his pioneering article, Rottenberg (1956) emphasizes the first stage of involvement ((1) in our previous scheme), to which he associates the affluence in the stadiums. A few years later, Neale (1964) insists on the second time of involvement ((2) on our previous scheme): the more uncertain a competition would be, the stronger the interest of spectators would be

and therefore the higher the league revenues (Andreff 2012). Two important consequences for the sport economy flow from this vision:

- the impossible existence of a monopoly (Jones 1969), because of the interdependence of the teams (Sloane 1969),
- the need for regulation (Rouger 2000, Dermitt-Richard 2012), precisely with the aim of maintaining this competitive balance through the introduction of appropriate measures.

Nowadays the concept of competitive balance is undeniably one of the "star" concepts of the sports economy. According to some commentators, it even makes it possible to differentiate sport shows from other live shows for which the notion of uncertainty of the result make no sense. One reason for its success is the various statistical measures (Groot 2008). Among the many measures proposed in the literature², let us mention:

- the classification of the teams at the moment of the match,
- the "talent" of clubs considered a good indicator of the forces involved,
- the bets entered with the bookmakers on the outcome of the matches,
- the index of concentration of victories on the first five of the championship,
- the Herfindahl index,
- the Gini index,
- the standard deviation of victories,
- the Noll-Scully index (1989),
- the Groot (2008) index of surprise victories,
- the number of times a club belongs to a group of x winning clubs,
- the Spearman rank correlation index,
- the Humphreys index (2002).

Another reason is related to the analytical possibilities that can be associated with it. In a non-exhaustive way: what are the effects (effectiveness) of the various existing regulatory instruments on its evolution? (Fort and Maxcy 2003, Késenne 2000) To what extent does the design of the competitions affect it? (Szymanski 2003, Owen and King 2015) What is its influence on hearings? (Di Domizio 2010, Forrest et al. 2005) On stadium attendance? (Coates and Humphreys 2010, Schmidt and Berri 2001) How to optimize recruitment to maintain it? (Flores et al. 2010) In Europe, what is its relationship to the financial health of clubs? (Andreff 2009) Etc. There is a lot of work being done by sports economists on these issues. Do spectators and viewers in sports confrontations show the uncertainty of the result the only basis for the interest? Observation of the facts requires us to answer in the negative. At least, five other elements attract the interest of sports fans:

- "competitive exceptionalism", i.e., the exceptional nature, of the performances achieved by top-level athletes (Bouvet 2020),
- the challenge of confrontations,

²For complete definitions, see Andreff (2012).

- the unconditional support given by some supporters to their favourite team, regardless of its ranking and the quality of the show offered,
- the presence of international stars in the opposing team,
- certain special events, specific to the confrontation.

In our opinion, this is the first limitation of this concept. A second is the difficulty of considering it for individual sports.

Competitive Balance in Individual Sport

The vast majority of work on competitive balance concerns team sports. As Sanderson already pointed out in 2002, however, it is also possible to focus on competitive balance in individual sports: "The general matter of competitive balance is not limited to team sports but is an inherent part of all competitions". Historically, Neale (1964) even chose an individual sport, boxing, to put forward the idea that, in order to guarantee the attractiveness of a sports show, competitors must be of a comparable level (Louis Schmelling paradox). In recent years, some work has focused on competitive balance in individual sports. Let us mention: Laband (1990), Kipker (2003), Klaasen and Magnus (2003), Rohm et al. (2004). More recently, Dubois and Hendeyls (2007) and Del Corral (2009), respectively, have compared the competitive balance in men's and women's tennis tours and analyzed these determinants in tennis.

Using a "structure-conduct-performance" model and different short and long-term indicators, according to Dubois and Hendeyls, men's tennis is the most competitive. From year to year, more new players enter the top 10 of the ATP ranking than do players remain in it and stability at the top of the hierarchy (leader in the ranking) is less strong. During the season, however, the difference between the men and women's tours seems less marked, as the results for men and women are also unpredictable. According to these authors, the differences in competitive balance between male and female tennis can therefore partly explain the preference of viewers and spectators for male tennis.

Del Corral (2009) wondered whether the increase in the number of seeded players in Grand Slam tournaments in 2001 (from 16 to 32) had led to a decrease in the competitive balance. Two different measures of competitive balance based on seed performance are used. In addition, differences in competitive balance due to gender and playing surface are studied. Its results: the competitive balance is higher for men than for women. More precisely, according to this author Wimbledon is the tournament where the competitive balance is strongest in the preliminary rounds, a result that is reversed as we approach the final.

Both authors were confronted with a difficulty specific to the analysis of the competitive balance in individual sport: the need to build a specific measurement indicator. The first, since there is no draw in tennis, have chosen indicators specific to this sport:

- the number of tie-breaks played during a match, with tie-breaks indicating how difficult it is for players to separate,

- the number of matches for which a decisive set (third or fifth) is required to decide between the players, to assess the competitive balance per match.

Then, to express the competitive balance during a season, they calculated a coefficient of variation in the ranking by dividing the ranking of the player considered by a number of average points. Finally, they used the Spearman's rank correlation index to measure uncertainty between two seasons and count the number of players ranked first in the rankings over a 37-year period.

On the basis of the proposals of Boulier and Stekler (1999), Del Corral has counted the percentage of seeded players passing a round of competition against a lower-ranked player (match-specific uncertainty) then compared the results of the seeded players in two periods: 1994-2000 and 2000-2008, periods during which the number of seeded players was respectively 16 and 32 (tournament's uncertainty). Unlike some of the competitive balance indicators used in collective sport listed above, these indicators have less scientific guarantee. However, as with rare exceptions, it is not possible to use them directly in individual sports (Del Corral 2009) it is essential to conceive them to integrate the specificities of the studied sport.

Unlike some of the indicators for measuring competitive balance used in collective sport listed above, these indicators have less scientific guarantee. But, as with rare exceptions, it is not possible to use them directly in individual sport (Del Corral 2009) it is essential to design them to integrate the specificities of the sport studied. This is also the case for golf competitions, for which, to our knowledge, there is no measure of competitive balance.

Why the Ryder Cup?

The Ryder Cup is a team golf competition that opposes every two years an American team and a European team. It bears the name of the one who is presented as its founder, Samuel Ryder. Businessperson, this English entrepreneur, once converted to golf³, worked hard to create this competition (Davis 2014). Before him, some passionate golfers had already had the idea of an opposition between the best American and European golfers. In 1921 and 1926, the first two confrontations between an American team and a British team even took place. But, it was in 1927, at the Westchester Country Club (Massachusetts), that the first "official" Ryder Cup was organized.

The modern format of this competition is as follows. Two teams are formed. They fight each other for three days. The first two days are doubles, the morning in foursome⁴ and the afternoon in four balls⁵. On Sunday, twelve singles are

³Samuel Ryder was a Methodist.

⁴In a foursome, the two players of the same team play a single ball, alternatively at the start, from the start to the hole. The team that scores the lowest score wins the hole. The team that wins the most holes wins the match.

⁵In four balls, each member of both teams plays his own ball. The team that achieves the lowest score on the hole wins it.

played in match play⁶. Introduced to promote the show, this game format mixing individual encounters and double known quickly met with great success symbolized by the record attendance of 15,000 spectators for the single on Saturday alone, during the first edition organized in Europe at Moortown golf club in Leeds. But, as Table 1 shows, American domination soon became outrageous.

Table 1. *History of the Ryder Cup between 1927 and 1977*

Date	Location	Winner	Score
1927	Worcester CC ⁷	USA	9.5-2.5
1929	Moortown GC	RU	7-5
1931	Scioto CC	USA	9-3
1933	Southport & Ainsdale GC	RU	6.5-5.5
1935	Ridgewood CC	USA	9-3
1937	Southport & Ainsdale GC	USA	8-4
Interruption	during	the second	World war
1947	Portland Golf Club	USA	11-1
1949	Ganton GC	USA	7-5
1951	Pinehurst CC	USA	9.5-2.5
1953	Wentworth GC	USA	6.5-5.5
1955	Thunderbird CC	USA	8-4
1957	Lindrick GC	USA	7.5-4.5
1959	Eldorado CC	USA	8.5-3.5
1961 ⁸	Royal Lytham & St. Annes	USA	14.5-9.5
1963	East Lake CC	USA	23-9
1965	Royal Birkdale GC	USA	19.5-12.5
1967	Champions GC	USA	23.5-8.5
1969	Royal Birkdale GC	Match null	16-16
1971	Old Warson CC	USA	18.5-13.5
1973	Muirfield	USA	19-13
1975	Laurel Valley GC	USA	21-11
1977 ⁹	Royal Lytham & St. Annes	USA	12.5-7.5

On 22 games, only three times (1933, 1953, 1969) the United States is worried. In several editions, the final difference is consistent. In other words, despite the reduction in the number of holes played (from 36 to 18) made in 1961 in the hope of favoring the British, this competition is characterized by a strong competitive imbalance. In 1979, the United States was too dominant and the Ryder Cup was at a crossroads. Something must be done to save her. The chosen solution is to open up the British team to continental players, in other words to turn it into a European team. Other solutions had been considered, but it is ultimately this one that is retained¹⁰. When the 1979 edition began on the Greenbier course in West Virginia,

⁶In match-play, the hole is won by the player who gets his ball into the hole in the smallest number of shots. In case of equality the hole is shared. The game is won by the player who leads by a number of holes better than the number of holes remaining to play.

⁷In bold the editions played in the United States, the others in Europe.

⁸From this edition, the matches are played on 18 holes and not 36, with two sessions of foursomes and singles that increase the total points of play from 12 to 24.

⁹At the request of the British PGA, from this edition, the number of matches is reduced and the number of points in play limited to 20.

¹⁰Constitute a Commonwealth or "rest of the world" team.

two Spanish players (S. Ballesteros and A. Garrido) defended the European team's colours for the first time. In addition, always with a view to obtaining a more balanced competition, the format evolves once again, two foursomes and two four balls are added, bringing the total of singles to 12.

Even if this edition ends once again with a large American victory (17-11), it marks by turning in the organization of this competition for which one of the major concerns of the organizers will now be to try to reduce the gap in level between the two teams. Two other developments go in this direction. The possibility given to the receiving team to choose the course of its choice and to "prepare" it by following the recommendations of the team captain, which should normally make it possible to increase the competitive balance between competitions. And the evolution of the player selection method allowing players to be selected independently of their membership Tour, a source of increased intra-competition competitive balance.

This clearly stated desire of the organizers since 1979 to improve the competitive balance is the main reason that led us to take an interest in this competition.

The second reason for our choice lies in the global success of this competition. Thus, during the last edition organized at the Golf National in France, 10,000 people were mobilised for its organization, at least 280,000 people moved on the site and more than a billion viewers witnessed the European team's triumph.

Finally, and this is the third reason for our choice, because the Ryder Cup is a competition where:

- from the final difference observed, it's possible to estimate an *ex-post* competitive balance indicator (see Table 2) by dividing the final difference by the number of points involved, and,
- to develop an *ex-ante* competitive balance indicator allowing:
 - to compare the competitive balance expected and achieved,
 - to study if there is a correlation between the expected competitive balance and that of the competition, and thus to answer our initial question.

Table 2. *Ranking, Observed Differences and Ex-Post Competitive Balance between 1979 and 2018*

Date	Place	Winner	Score	Final dif.	CB <i>ex-post</i>
1979	The Greenbrier	USA	17-11	6	0.21
1981	Walton Health GC	USA	18.5-9.5	9	0.32
1983	PGA Ntnl GC	USA	14.5-13.5	1	0.03
1985	The Belfry	EU	16.5-11.5	5	0.18
1987	Muirfield Village	EU	15-13	2	0.07
1989	The Belfry	Draw	14-14	0	0
1991	The Ocean Course, Kiawah Island	USA	14.5-13.5	1	0.03
1993	The Belfry	USA	15-13	2	0.07
1995	Oak Hill CC	USA	14.5-13.5	1	0.03
1997	Valderrama GC	EU	14.5-13.5	1	0.03
1999	The Country Club	USA	14.5-13.5	1	0.03

2002 ¹¹	Sutton Coldfield	EU	15.5-12.5	3	0.11
2004	Oakland Hills CC	EU	18.5-9.5	9	0.32
2006	The K Club	EU	18.5-9.5	9	0.32
2008	Valhalla GC	USA	16.5-11.5	5	0.18
2010	Celtic Manor Resort	EU	14.5-13.5	1	0.03
2012	Medinah Country Club	EU	14.5-13.5	1	0.03
2014	PGA Centenary Course, Gleneagles	EU	16.5-11.5	5	0.18
2016	Hazeltine National GC	USA	17-11	6	0.21
2018	Le Golf National	EU	17.5-10.5	7	0.25

The Intermediate Indicators Selected and the Calculation of the *Ex-Ante* Competitive Balance of the Ryder Cup

Approach

Why talk about the modern era of the Ryder Cup since 1979? Because, as we have already pointed out, this year is a real turning point in the history of this competition. After 18 consecutive defeats, it had become vital for the British PGA to rekindle interest in this competition at the risk of losing it (Callow 2018). The evolution concerns the forces present on the ground but also the potential spectators and viewers. From this date, all European golfers likely to see one of their compatriot join the team have a good reason to be interested. Even if the USA still won easily, the 1979 edition certainly marked an internationalization of the competition which will then be confirmed with the selection of a large number of players of different nationalities.

With this in mind, with the help of the Ryder Cup's official website¹², the first step in our analysis was therefore consisting of:

- to identify the twelve members of the two opposing teams in the twenty editions that have alternately taken place in Europe and the United States since 1979,
- to place them in a table allowing them to be associated with an annual and current shape indicator.

This type of table is used to identify competitors. On the other hand, it does not give us any indication of how it was selected. However, at this level too, several considerations have been made to increase the competitive balance of the competition. Six years before the 1979 landmark edition, Great Britain and Ireland officially formed an alliance¹³ and the selection process evolved for the first time. From the 1973 edition onwards, eight players were automatically selected based

¹¹The 34th edition was moved from 2001 to 2002, due to the events of September 11th.

¹²www.rydercup.com.

¹³In fact the Irish were selectable since 1953 and he winnings earned on official competitions between January 1, 2008 and August 11, 2008 (one point per \$ 1,000 won) - excluding major tournaments and tournaments played in the same week as a major tournament or one of the 3 tournaments of the world championship of golf), the North Irish since 1947.

on their results and four could be freely chosen by the captain, which opened up new strategic perspectives. Since then, on the European and American sides, the selection methods have been periodically adjusted in order to present the best possible teams.

Thus, in the last edition:

- on the European side to take into account:
 - o the presence of the best European players on the PGA Tour,
 - o the ability of some players to transcend themselves during team competitions, the players making up the European team were the top four players in the European ranking, the top four European players in the world ranking and four players selected by the European captain, T. Bjorn;
- on the American side, a more "mathematical" selection process had been developed on the basis of the points earned between the first tournament of the 2017 Grand Slam and August 11, 2018, to which were added the four choices of the American captain J. Furyk according to the following scale:
 - o Winnings from 2007 major tournaments (one point for every US\$1,000 won), wins in official competitions between January 1, 2008 and August 11, 2008 (one point for every US\$1,000 won - excluding major tournaments and tournaments played the same week as a major tournament or one of the 3 world golf championship tournaments),
 - o Winnings from 2008 major tournaments (two points per US\$1,000 won),
 - o winnings from tournaments in the same week as a major tournament or one of the 3 World Golf Championship tournaments (1/2 point per US\$1,000 won).

On similar bases, since 1979, 210 different players have been selected.

Players and Construction of Intermediate Indicators

Table 3 shows the 210 players who have participated in the Ryder Cup since 1979.

Table 3. *Players who Participated in the Ryder Cup between 1979 and 2018*

Years						Team	USA					
1979	Trivino	Kite	Hayes	Nelson	Morgan	Elder	Irwin	Green	Zoeller	Bean	Mahaffey	Wadkins
1981	Trivino	Kite	Rogers	Nelson	Lietzke	Pate	Irvin	Miller	Watson	Floyd	Crenshaw	Nicklaus
1983	Haas	Kite	Morgan	Gilder	Strange	Peete	Stadler	Zoeller	Watson	Floyd	Crenshaw	Wadkins
1985	North	Kite	Jacobsen	Green	Sutton	Peete	Stadler	Zoeller	Strange	Floyd	O'Meara	Wadkins
1987	Bean	Kite	Calcav	Nelson	Sutton	Pohl	Stewart	Crenshaw	Strange	Mize	Simpson	Wadkins
1989	Watson	Kite	Calcav.	McCumber	Couples	Beck	Stewart	Azinger	Strange	Green	O'Meara	Wadkins
1991	Pavin	Pate	Calcav.	Levi	Couples	Beck	Stewart	Azinger	Irvin	Floyd	O'Meara	Wadkins
1993	Pavin	Kite	Jansen	Love III	Couples	Beck	Stewart	Azinger	Cook	Floyd	Gallacher	Wadkins
1995	Pavin	Haas	Strange	Love III	Couples	Magert	Crenshaw	Jacobsen	Roberts	Faxon	Lehman	Mickelson
1997	Leonard	Magert	Woods	Love III	Couples	Magert	Jansen	Hoch	Furyk	Faxon	Lehman	Mickelson
1999	Leonard	Magert	Woods	Love III	Stewart	Pate	Duval	O'Meara	Furyk	Sutton	Lehman	Mickelson
2002	Azinger	Toms	Woods	Love III	Cink	Hoch	Duval	Verplank	Furyk	Sutton	Calcav.	Mickelson
2004	Perry	Toms	Woods	Love III	Cink	DiMarco	Funk	Campbell	Furyk	Riley	Haas	Mickelson
2006	Henry	Toms	Woods	Verplank	Cink	DiMarco	Wetterich	Campbell	Furyk	Taylor	Johnson	Mickelson
2008	Kim	Mahan	Leonard	Perry	Cink	Holmes	Weekley	Campbell	Furyk	Curtis	Stricker	Mickelson
2010	Johnson	Kuchar	Woods	Overton	Cink	Watson	Fowler	Johnson	Furyk	Mahan	Stricker	Mickelson
2012	Johnson	Kuchar	Woods	Dufner	Snedeker	Watson	Simpson	Johnson	Furyk	Bradley	Stricker	Mickelson
2014	Walker	Kuchar	Mahan	Spieth	Fowler	Watson	Simpson	Johnson	Furyk	Bradley	Reed	Mickelson
2016	Johnson	Kuchar	Koepka	Spieth	Fowler	Moore	Snedeker	Johnson	Walker	Holmes	Reed	Mickelson
2018	Johnson	Woods	Koepka	Spieth	Fowler	Watson	Simpson	Dechambeau	Finau	Thomas	Reed	Mickelson
Years						Team	EU					
1979	Smyth	Lyle	Gallacher	Jacklin	Ballesteros	Brown	Barnes	Garido	Faldo	Kings	Oosterhuis	James
1981	Torrance	Lyle	Gallacher	Darcy	Smith	Langer	Pinero	Canizares	Faldo	Clark	Oosterhuis	James
1983	Torrance	Lyle	Gallacher	Brand	Ballesteros	Langer	Waites	Canizares	Faldo	Way	Woosnam	Brown
1985	Torrance	Lyle	Pinero	Rivero	Ballesteros	Langer	Clark	Canizares	Faldo	Way	Woosnam	Brown
1987	Torrance	Lyle	Olazabal	Rivero	Ballesteros	Langer	Clark	Brand Jr	Faldo	Darcy	Woosnam	Brown
1989	Torrance	Raferty	Olazabal	Canizares	Ballesteros	Langer	Clark	Brand Jr	Faldo	James	Woosnam	O'Connor
1991	Torrance	James	Olazabal	Gilford	Ballesteros	Langer	Broadhurst	Montgomerie	Faldo	Feherty	Woosnam	Richardson
1993	Torrance	James	Olazabal	Rocca	Ballesteros	Langer	Haeggman	Montgomerie	Faldo	Lane	Woosnam	Baker
1995	Torrance	James	Clark	Rocca	Ballesteros	Langer	Walton	Montgomerie	Faldo	Gilford	Woosnam	Johansson
1997	Parnevik	Olazabal	Clark	Rocca	Westwood	Langer	Garrido	Montgomerie	Faldo	Bjorn	Woosnam	Johansson

1999	Parnevik	Olazabal	Clark	Sandelin	Westwood	Jimenez	Garcia	Montgomerie	Coltart	Lawrie	Van de Velde	Harrington
2002	Parnevik	Fasth	Fulke	Mc Ginley	Westwood	Langer	Garcia	Montgomerie	Price	Bjorn	Clarke	Harrington
2004	Poulter	Casey	Howell	Mc Ginley	Westwood	Donald	Garcia	Montgomerie	Jimenez	Levet	Clarke	Harrington
2006	Howell	Casey	Olazabal	Mc Ginley	Westwood	Donald	Garcia	Montgomerie	Stenson	Karlsson	Clarke	Harrington
2008	Hansen	Casey	Poulter	Mc Dowell	Westwood	Rose	Garcia	Jimenez	Stenson	Karlsson	Wilson	Harrington
2010	Hanson	Kaymer	Poulter	Mc Dowell	Westwood	Donald	Fisher	Jimenez	Molinari	Molinari	Mc Ilroy	Harrington
2012	Hanson	Kaymer	Poulter	Mc Dowell	Westwood	Rose	Garcia	Colsaert	Donald	Molinari	Mc Ilroy	Lawrie
2014	Bjorn	Kaymer	Poulter	Mc Dowell	Westwood	Rose	Garcia	Dubuisson	Stenson	Donalds.	Mc Ilroy	Gallacher
2016	Wood	Kaymer	Sullivan	Pieters	Westwood	Rose	Garcia	Cabrera Bello	Stenson	Willet	Mc Ilroy	Fitzpatrick
2018	Hatton	Casey	Poulter	Rham	Noren	Rose	Garcia	Fleetwood	Stenson	Molinari	Mc Ilroy	Olesen

Ph. Mickelson is the American player who has participated in the most editions (12). N. Faldo and S. Garcia are his “alter-ego” but so far with only 10 participations. During this period, the two most convincing victories were obtained by T. Kite against H. Clark in 1987 and F. Couples against I. Woosnam in 1997: 8 and 7¹⁴. The Spanish S. Ballesteros and J.M. Olazabal are the pair with the best record: 11 wins, 2 losses and 2 games shared. Since 1979, Europeans have scored 286.5 points and Americans 273.5 points. The most prolific captain picks were L. Westwood in 2006 (3 wins and 2 games shared) and I. Poulter in 2008 and 2012 (4 wins)¹⁵.

¹⁴8 holes won and 7 holes remaining to play. Principle of calculation of the ex-ante competitive balance.

¹⁵See: www.rydercup.com/news.

Beyond these individual statistics, since 1979, the organisers have been determined to give European and American team captains the opportunity to field the most competitive teams possible. To do this the teams must include in their rank the best golfers of the two continents the most successful on the day of the event. Consequently, the selections are established on the basis of the international rankings while allowing captains to choose several players according to other criteria: experience, technical complementarity and above all, current form. Our intermediate indicators had to integrate these dimensions. This is why we chose to define each player's performance indicator (PI) before the competition as the sum of an annual performance indicator (API) and a current performance indicator (CPI). Since this is the preferred criterion for selecting players, the annual performance indicator used is the ranking of players the month preceeding the event. Since according to many works (Ehrenberg and Bognanno 1990, Becker and Huselid 1992, Melton and Zorn 2000) the prize money of the tournaments is a factor that has a significant impact on player participation, our current performance indicator corresponds to the average ranking of the players in the four best remunerate tournaments in which they participated during the period preceding the Ryder Cup. So,

$$PI_{\text{PLAYER}} = \text{API} + \text{CPI}$$

Thanks to these two indicators, it was then possible for us to estimate an *ex-ante* competitive balance indicator for each edition.

Principle of Calculation of the Ex-Ante Competitive Balance

Once the API and CPI indicators have been constructed, two steps are needed to calculate the *ex-ante* competitive balance of the different editions of the Ryder Cup. First, we have to move from an individual indicator to a team indicator. For this, the IFP of the teams is obtained by adding the IP of each player:

$$\text{IFM} = \sum_{j=1}^{12} PI_j$$

Then, the competitive gap that constitutes our measure of *ex-ante* competitive balance is obtained by making the difference between the IFM of the American team and the IFM of the European team.

$$\text{CG} = \text{IFP}_{\text{USA}} - \text{IFP}_{\text{EU}}$$

Therefore, smaller the competitive gap is, stronger the competitive balance is. This competitive balance is calculated by differentiating cumulative (average) rankings. Since it is expressed as a difference, it can be approximated to the final difference calculated by making the difference between the total numbers of points

scored by the players in the competition that can be perceived as the performance level of the players lined up in both teams. This approach has three limitations:

- The API is calculated on the basis of performances mainly achieved by European and American players on their respective tours, the European Tour and the PGA Tour, and therefore by not participating in the same events. This difference, however, is tending to diminish due to the creation of so-called "World Championship" events, but also because the best European players are now participating in many PGA Tour tournaments. The creation of a world ranking starting in 1987 partly makes it possible to go beyond this limit, but only partly because the average team ranking that can be is also calculated on different bases.
- The CPI is also an overall estimate of the players' form on D-Day since not all players make the same choices to prepare the competition during the summer. Some, at the risk of starting the competition tired, have to play a lot to qualify hoping to be retained by the captain. Others play little for personal reasons or because of non-qualifications, and still others to deal with long-standing commitments.
- The CPI does not directly integrate the strategic reflections of captains sometimes choose players in relative bad shape but very experienced and/or offer a certain number of guarantees because of their playing style.

Estimates, Discussion and Comments

Data and Results

To obtain the necessary data for our various calculations, we consulted the websites of the PGA Tour and the European Tour. To calculate the API respectively at addresses:

- Stats/Money Finishes/Official money/Year
- Race to Dubai/Ranking/Year.

To calculate the CPI at addresses:

- Stats/Schedule/Year/Tournament/Leaderboard
- Tournaments/Year/Tournament and venue.

For the twenty years studied, it was then possible to build a table identical to Table 4 relating to the 2018 edition played at The Golf National.

Table 4. API, CPI and Therefore PI and IFP of Teams Participating in the 2018 Edition

	Players	API	CPI	PI
	J. Thomas	1	12.75	13.75
	D. Johnson	2	11.25	13.25
	B. Dechambeau	4	10	14
	B. Koepka	5	16.25	21.25
	B. Watson	6	21.5	27.5
	T. Finau	7	6.75	13.75
Team USA	T. Woods	8	17.75	25.75
	W. Simpson	9	21.75	30.75
	P. Reed	12	26.75	38.25
	Ph. Mickelson	13	36.25	49.25
	R. Fowler	16	5.5	21.5
	J. Spieth	32	30.67	62.67
Total Equip		115 (10)	217.17	332.17
	J. Rose	3	27	30
	E. Molinari	1	43	44
	T. Fleetwood	3	14.75	17.75
	R. McIlroy	4	7.34	11.34
	A. Noren	5	55.67	60.67
	T. Olesen	6	20	26
Team Europe	J. Rham	7	44.5	51.5
	I. Poulter	28	66.34	94.34
	H. Stenson	31	49	80
	P. Casey	24	22	46
	S. Garcia	39	7	46
	T. Hatton	9	20.34	29.34
Total Equip		160 (13)	376.94	536.94

Finally, by taking up all the results for the twenty editions studied, we were able to build the summary Table 5.

Table 5. Summary of the Results Obtained and Observed

Years		Team	USA			Team	Europe		Competitive gap	Score final
	Average world ranking ¹⁶	API ¹⁷	CPI	PI (1)	Average world ranking	API	CPI	PI (2)	(1) - (2)	
1979 (USA)		118	332.15	450.15		168 (14)	295.92	463.92	-13.77	6 (17-11)
1981 (EU)		108 (9)	346.04	454.04		122 (11)	370.26	492.26	-38.52	9 (18.5-9.5)
1983 (USA)		162 (14)	499.32	661.32		204 (17)	219,01	423.01	238.31	1 (14.5-13.5)
1985 (EU)		131 (11)	547.84	678.84		130 (11)	348,67	478.67	200.17	5 (11.5-16.5)
1987 (USA)	18	223 (19)	374.08	597.08	40	125 (10)	307.25	432.25	164.83	2 (13-15)
1989 (EU)	14	242 (20)	423.15	665.15	32	115 (10)	334.34	449.34	215.81	0 (14-14)
1991 (USA)	19	321 (24)	425.58	746.58	34	110(30)	280,5	391.5	-355.08	1 (14.5-13.5)
1993 (EU)	12	325 (27)	650.57	975.57	27	123 (10)	422.81	545.81	411.76	2 (15-13)
1995 (USA)	24	309 (26)	644.15	953.15	39	235 (20)	508.92	743.92	209.23	1 (13.5-14.5)
1997 (EU)	15	177 (15)	360.84	537.84	37	138 (11)	379.84	517.84	20	1 (13.5-14.5)
1999 (USA)	12	142 (12)	353.35	495.35	41	159 (13)	353,15	512.15	-16.8	1 (14.5-13.5)
2002 ¹⁸ (EU)	31	579 (48)	508.01	1087.01	58	361 (30)	509.84	870.84	216.17	3 (12.5-15.5)
2004 (USA)	19	334 (28)	425.09	759.09	36	140 (12)	426.34	566.34	192.75	9 (9.5-18.5)
2006 (EU)	29	240 (20)	457.06	697.06	23	190 (16)	551.25	741.25	-44.19	9 (9.5-18.5)
2008 (USA)	25	196 (16)	405.67	601.67	22	177 (15)	303.77	480.77	120.9	5 (16.5-11.5)
2010 (EU)	17	218 (18)	311.73	529.73	18	116 (10)	494.27	610.27	-80.54	1 (13.3-14.5)
2012 (USA)	12	115 (10)	319.16	434.16	19	142 (12)	409,61	551.61	-117.47	1 (13.5-14.5)
2014 (EU)	16	175 (15)	425.91	600.91	20	107 (9)	390.41	497.41	103.5	5 (11.5-16.5)
2016 (USA)	16	218 (18)	348.17	566.17	28	312 (26)	462.95	774.95	-208.78	6 (17-11)
2018 (EU)	9	115 (10)	217.17	332.17	11	160 (13)	376,94	536.14	-204.77	7(10.5-17.5)

¹⁶The Official World Golf Ranking ranks the level of performance of professional golfers worldwide. This ranking was created in 1986. The number that appears as an indication in this column is the average ranking of the teams.

¹⁷Between brackets the average indicator.

¹⁸The 2001 edition was postponed to the following year due to the events of 11 September.

Discussion

In Table 5 are noted:

- the year of the last twenty editions, with in brackets the continent on which the competition took place and in bold the six editions having in the unanimous opinion of observers marked the history of this competition.
- As an indication the average world ranking of the teams aligned before the competition. According to this indicator the US team should almost always be considered as favourite (14 times out of 16), which is explained both by the way this ranking is developed - which places great importance on the most prestigious tournaments more easily accessible to PGA Tour members - and also because it does not take into account the recent performances of the players. In addition to having existed only since 1986, for these two reasons we have not used it as a reference indicator.
- For both teams, the API and CPI indicators estimated as indicated above.
- The PI indicator of both teams.
- In the right-hand side, the competitive gap (CG) and the final gap observed in the course.

When reading Table 5, several results appear:

- the "home advantage" is an important advantage: 14 times out of 16 (6 times for the USA, 7 times for Europe) the host team won.
- The annual performance index, estimated based on performances almost exclusively achieved on the tours of belonging, represents a level equality higher than that of the average world ranking.
- The CPI shows significant disparities since it is between 217.17 and 650.57, resulting from captains' choices to either trust the high-performance players, or to select experienced players despite the absence of convincing results in the months preceding the competition.
- These different editions are characterized by competitive differences prior to the competition, suggesting "tight" editions (9) for which the average ranking gap is less than one, and other editions where a favourite emerges clearly since this gap is much larger, 34 places in the 1993 edition.

From our point of view, the answer to the following question is particularly interesting: was the *ex-ante* competitive balance (i.e., the lowest competitive gap) the highest in the editions that marked the history of this competition (in bold in Table 5)? The answer to this question is rather negative: in these six editions, only that of 1999 is characterized by a very small competitive gap (-16.8). Moreover, does the "favourite" team, in other words the team for which the competitive gap was in its favour, most often prevail? Here again, the answer must be qualified since this prediction is true only in 12 editions: 1979, 1981, 1985, 1987, 1991, 1995, 1997, 1999, 2002, 2004, 2014, and 2016. More specifically, Table 6 in which puts into perspective the expected and actual differences (+ reflect expected

and/or significant deviations and - the opposite) reflects a wide disparity in the results obtained.

Table 6. Comparison of Expected and Realized Gaps

		Anticiped	gaps
		+	-
Observed	+	6	4
gaps	-	4	5

More generally, Table 7, which compares the two main predictive elements of the result with the observed results, provides a typology of the different editions studied.

Table 7. Typology of the Last 20 Editions of the Ryder Cup

Years	Location	Beneficiary of the competitive gap	Winner	Type of final gap	Type of competition
1979	USA	USA	USA	+	Confirmation
1981	EU	USA	USA	+	Confirmation despite location
1983	USA	EU	USA	-	Suspense ½ surprise (USA)
1985	EU	EU	EU	+	Confirmation
1987	USA	EU	EU	-	Confirmation with logical suspense
1989	EU	EU	Match nul	-	Suspense Surprise (USA)
1991	USA	USA	USA	-	Confirmation with suspense
1993	EU	EU	USA	-	Surprise (USA)
1995	USA	EU	EU	-	Logical suspense
1997	EU	EU	EU	-	Suspense
1999	USA	USA	USA	-	Suspense
2002	EU	EU	EU	+	Confirmation
2004	USA	EU	EU	+	Confirmation despite location
2006	EU	USA	EU	+	½ Surprise (EU)
2008	USA	EU	USA	+	½ Surprise (USA)
2010	EU	USA	EU	-	Suspense ½ Surprise (EU)
2012	USA	USA	EU	-	Suspense Surprise (EU)
2014	EU	EU	EU	+	Confirmation
2016	USA	USA	USA	+	Confirmation
2018	EU	USA	EU	+	½ Surprise (EU)

Table 7 allows distinguishing six types of editions:

- "confirmations": when the winner wins on his course and benefits from the competitive gap,
- "confirmations despite location": when the beneficiary of the competitive gap wins out,
- "½ surprises": when it is not the favourite who prevails by playing at home with or without suspense depending on the nature of the final gap,
- "logical surprises": when the favourite wins away,
- "surprises": when a team wins away (with or without suspense) without being favourite with a more or less important difference,

- "logical suspense": when the favourite team wins at home with a small gap.

Therefore, several implications for taking a position on the question posed can be drawn from these results.

Implications

The more detailed analysis of the previous results may be of interest to three groups of stakeholders: future captains of European and American teams, organisers of future editions and (sport) economists

Putting in perspective the CPI and the results makes it possible to judge the comparative efficiency of the alternative recent performances vs experience/technical complementarities. Except for the 1983, 1991, 1993, 2010 and 2018 editions, the teams presented themselves in a comparable average form (150 points difference at least). However, in spite of this comparable initial situation, during the editions (2008, 2016) significant final gaps were observed. Conversely,

- in the 1983, 1993, 1995, 2010 and 2012 editions, despite relatively distant CPIs, the final gaps were small,
- at the time of the 1991, 2004 and 2006 editions, despite close CPIs, the final gaps were significant,
- at the 2018 edition, although the US team presents the best CPI of the 20 editions, the European team won by seven points,

The 2002 edition was the one where CPIs were closest. In the 1985 and 1997 editions, close CPIs led to tight results. Conversely, during the 1979 and 1981 editions, despite close CPIs, the final gaps were large. No clear correlation between the CPI and the final gaps can therefore be clearly highlighted. Our conclusion: the future captains, as Bjorn did in 2018, should therefore give priority to experience/efficiency criterion to constitute their team.

In several other sports, a "home advantage" has been highlighted (Courneya and Carron 1992, Nevil and Holder 1999, Pollard and Pollard 2005, Carron and Loughhead 2005, Carmichael and Thomas 2005). Can we generalize this result to the Ryder Cup? Our work does not allow us to answer this question with certainty. However:

- only six teams have imposed themselves outside (twice the US and 4 times Europe),
- only two teams managed to win away without being favoured in terms of competitive gap.

These findings therefore confirm the specialists' feeling that the choice of the type of course and its preparation can be decisive factors in the final victory. This was the case for the USA in 1983 and 2008, on the PGA National Golf Club in Palm Beach and Valhalla, courses that regularly host PGA Tour events, and maybe

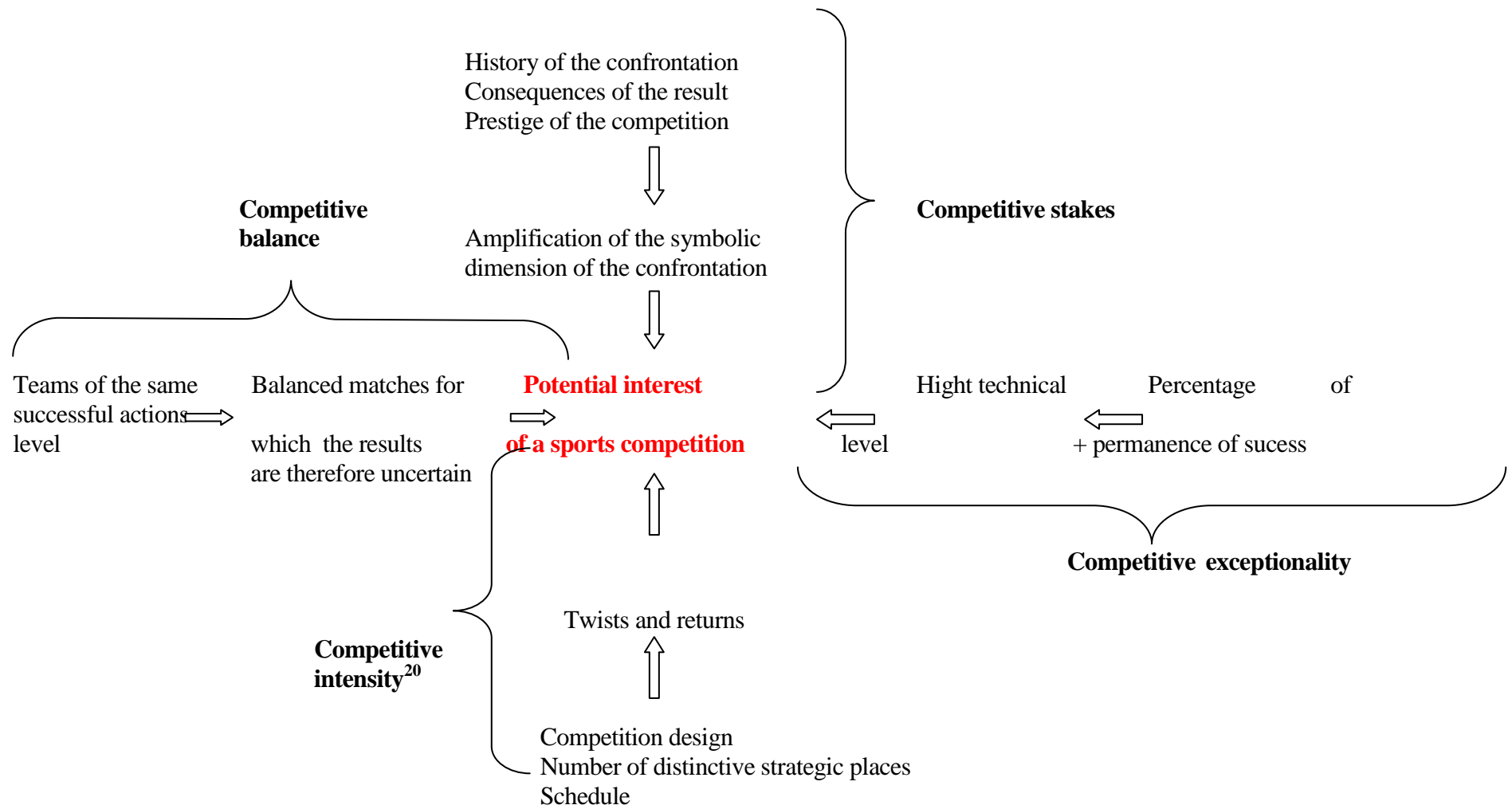
even more in favour of the European team in 2006, 2010, 2018, editions during which the preparation of the K Club, Celtic Manor and the Golf National courses, combined with difficult weather conditions, have greatly disadvantaged the US team.

In the unanimous opinion of observers, some editions have marked the history of this competition (Callow 2018): it is the one of 1985, 1987, 1991, 1999, 2012 and 2018. Only the 1999 edition was characterized by a low competitive gap and therefore a strong *ex-ante* competitive balance. The reasons for the historical success of these editions must therefore be sought at other levels. Successively it is:

- the symbolic character of the European team's first victory after 28 years of waiting,
- of the European team's first away victory,
- the extreme tension characterizing the 1991 edition due to the politico-diplomatic context (Gulf War),
- the most successful comeback in the history of the competition made by the American team during the simples, source of controversy as the American players celebrated victory before the final outcome of the event,
- the totally unexpected comeback at the beginning of the competition made by the European team's in America, described as "the miracle of Medinah", inspired by the memory of S. Ballesteros, emblematic player of the Ryder Cup who died in 2011,
- in 2018, the extraordinary popularity enthusiasm of this second edition organized in continental Europe where the European team won against an American team presented as one of the strongest in history and relying on the historic comeback of Tiger Woods, winner of the PGA Tour final event the previous week.

The weakness of the *ex-ante* competitive gap reflecting a strong competitive balance does not systematically bode the final gap. Only three editions (1997, 1999, 2010) correspond to this case. Other factors influence the interest of spectators and viewers in the Ryder Cup and certainly in other sports competitions. In view of our results and previous examples these are: the quality of the selected players capable of achieving exceptional performances three days in a row, the specific design of this competition which combines individual duels and collective confrontations, the identity aspect of the duel, its "rarity" (only one edition every two years), twists and turns that may occur, its international prestige, its history and consequences that may result even if players are not paid for participate¹⁹. Beyond the example of the Ryder Cup, to provide a synthetic answer to the question raised in this reflection, the following synthesis scheme seems to us to be the most meaningful.

¹⁹To which must be probably add the proximity of the public.



²⁰On this point see: Kringstad and Gerrard (2007) and Scelles and Durand (2010 and 2012)

Conclusion

Competitive balance is currently one of the few (if not the only) specific concepts of the sport economy. Logically, it gives rise to many academic works and influences the choices of sports event organizers. Without explicitly referring to this concept, this is exactly what happened when the members of the British PGA chose to give the opportunity to the best continental golfers to join the now European Ryder Cup team. From 1979, thanks to the reinforcement of international players, but also because of the evolution of the principle of selection and freedoms left to host countries to organize the future editions, everything had to contribute to an increase in the competitive balance. Was the result there? At first glance, undeniably since, while the United States had won the competition 19 times (out of 22) between 1927 and 1977, they only won it 9 times (out of 20) between 1979 and 2018. A more precise examination of the level of the teams, the progress of the matches and the results, led to qualify this conclusion. Table 8 summarizes the more general results highlighted in this work.

Table 8. *Competitive and Final Gaps in the Five Most Balanced First Editions*

Editions	Competitive gap	Finals gap
1979	13.77	6
1999	16.80	1
1997	20	1
1981	38.52	9
2006	44.19	9

The five editions (1979, 1981, 1997, 1999, 2006) for which the *ex-ante* competitive balance was the strongest generated twice indecisive match but also two matches where the final gap was the largest of modern editions of the competition and another where the gap was consequent. In addition, only one of these editions significantly affected the history of the competition. The success of the Ryder Cup is therefore the interest aroused by the public is multi-factorial. Its history, design, identity, concentration of talents and the twists and turns, beyond the comparative ranking of the selected players, also explain the enthusiasm for this competition. Competitive balance is a necessary condition for the success of competitions but not exclusive and always sufficient. So, for the future, we wish:

- unlike the choice made in tennis for the Davis Cup, that the organizers preserve for a long time the specificity of the Ryder Cup,
- as was the case at the 2018 edition played at The Golf National, they systematically choose courses that allow players to showcase their immense talent.

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