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ABSTRACT

The thesis studies the impact of the managerial replacements on the performance of the organizations. Specifically, the effectiveness of the decisions to dismiss the managers is investigated with reference to the football sector because data about the results of the teams and the turnovers of the managers are publicly observable at high frequency and without uncertainty. In particular, the thesis analyses the role of the football managers, the impact of their abilities on the performance of the football teams, the determinants of coach dismissals and the economic and sporting consequences of the managerial replacements. The study is focused on the Italian Serie A and it takes into consideration all the in-season managerial replacements that take place from the season 2007/2008 to the season 2016/2017 with the final aim of making a comparison between the sports performance of the football clubs in case of managerial replacement and the performance of the football clubs in the event of no managerial substitution. Consequently, average points, cumulative points, surprise in points and cumulative surprise are used as proxies of the sports performance and, in detail, pre-game market average betting odds, adjusted according to the bookmaker's margin, are used in order to compute the deviations from the performance expectations of the football teams. The thesis also includes five case studies in which the performance of the football clubs that fire their coaches during a season, due to bad outcomes, is compared with the performance of the same clubs in another season in which the coaches are allowed to stay even though the outcomes, at the time of the potential dismissal, are almost identical to the case of managerial replacement. The conclusive result of the thesis is represented by the fact that, in the majority of the cases, the decision to substitute the manager turns out to be ineffective and even counter-productive because the sports performance in the event of managerial turnover is on average worse than in the case in which the coaches are allowed to stay until the end of the season. Therefore, in light of this result, relevant reasons behind the decision to dismiss the manager seem to be the shock effect, the risk of relegation and the desire to find a scapegoat to blame for the bad sports results.

INTRODUCTION

Football is not only a game. Football is a mirror of real life. There are a lot of choices and aspects related to football matches which perfectly reflects situations that happen in the everyday life. Football teaches the importance of never give up until the end of the match because the match ends only when the referee blows the whistle. This concept is also scientifically proven by the study of Galli, et al., (2021, p. 1) who analyse the correlation between the football players' performance and the success of their team, the so-called *science of success*, and who come to the conclusion that "players' behavior on a time interval is more and more correlated with the match outcome as the 90 minutes elapse". Football, also, shows people that dreams come true. It teaches and constantly demonstrates that nothing is impossible because football teams with the best players do not always win and there are also a lot of elements which can have an impact on the results of football matches such as luck, weather conditions, size of the football field and attendance of fans. Indeed, a special and rare feature of football is represented by the high level of unpredictability of every football match because even teams that seem superior considering all the statistics can be defeated by teams coming from inferior leagues (Marchiori & De Vecchi, 2020, p. 1). Moreover, football shows that the passion and the motivation of players and coaches are key determinants of the success. Furthermore, as in everyday life it is indispensable to have a family who supports individuals in every choice they made, a family who teaches the essential values and who takes necessary decisions, in the same way in football it is fundamental the presence of coaches, managers and directors who give a sense of stability and who are capable of making even painful decisions for the good of the football team.

Moreover, given the relevance and popularity of football at the international level, it has a relevant impact on the society and it can also increase the awareness on environmental sustainability issues. For this reason, a lot of solutions are adopted in the football sector in order to diminish the impact of football matches and events on the surrounding environment in compliance with the environmental sustainability principles and rules of the modern society. In particular, Daddi, et al., (2022, p. 208) distinguish between environmental operational practices which are related to aspects associated with football events, such as water and energy consumption, waste, mobility and logistics management, and environmental governance-level practices which are related to the organization of procedures and responsibilities within the management structure.

According to Rossi, et al., (2013, p. 547) football is a “complex phenomenon where sport, social and economic dimensions co-exist, intersect and influence each other”. Consistently, football is a fundamental aspect of the lives of millions of people around the world because it has a huge impact on fans’ emotions and sentiments. The results and events related to football matches are also relevant for individuals who are not fans of a football team because it can generate consequences concerning the economy in general. Indeed, a lot of football clubs are listed in the stock exchanges and the prices and the returns of the stocks are influenced by the performance of the football clubs since the positive and especially the negative results have a significant impact on the mood and on the decision-making process of investors or supporters (Floros, 2014, pp. 202-208). Moreover, the magnitudes of the reactions of the investors increase in case of positive unexpected results and they are greater after the football games characterised by a remarkable emotional component, while bad outcomes lead to long lasting reactions of the investors, regardless of the surprise component, as a consequence of the fact that negative information is slowly processed due to the concerns about the future performance caused by a negative result (Dimic, et al., 2018, p. 91).

Nowadays, football has become a business which is able to generate huge financial and economic flows (Trequattrini, et al., 2016, p. 1). In particular, good sporting results generate financial rewards and increase the cash flows of the football clubs by leading to greater participation of the supporters, more expensive prices of the tickets, higher payments from the league on the basis of the position in the final ranking, growing broadcasting revenues related to the sale of media rights and increased revenues from advertising, sponsoring partnerships, merchandising and television rights (Floros, 2014, pp. 201-202; Neri, et al., 2021, p. 1).

Buccioli, et al. (2019, p. 2) claim that “in a modern professional soccer team, the coach can be viewed as the CEO with regard to team behavior in training sessions and matches” because he/she has the power over essential decisions concerning the training methods and the system of play.

Therefore, the analysis of the impact of in-season managerial replacements on the sports performance of the football teams is useful in order to make a parallelism with the impact of the turnover of the managers on the performance of the firms operating in the business sector. Kangas, et al., (2018, p. 707) identify five categories of reasons underlying managerial turnover that are: dismissal, career challenges, decreased motivation, organizational change, dissatisfaction with the job or organization. However, the main cause of managerial turnover is the layoff of the manager.

In particular, the top managers of the firms have great discretion in carrying out their duties but they are subject to monitoring by the shareholders whose extreme action is represented by the dismissal of the manager or its announcement (Voußem, et al., 2015, p. 710). Consequently, the investment decisions of the managers end up being influenced by the replacement decisions of the board (Douglas, 2001, p. 28)

Specifically, a poor performance of the firm appears to be the fundamental determinant behind the decision to dismiss the manager (Greene & Smith, 2021, p. 1). Indeed, according to McNeil, et al., (2004, p. 64) “better information about the performance-generating process increases the likelihood of turnover following poor performance”.

Consequently, the top managers are usually replaced in the event that the success of the company falls short of expectations (Schefczyk & Gerpott, 2001, p. 161).

Furthermore, McNeil, et al., (2004, p. 63) claim that “compared to turnover of CEOs, subsidiary manager turnover is significantly more sensitive to changes in performance and significantly more likely following poor performance”. However, according to Lel, et al., (2019, p. 720) “private firm managers are less likely to be replaced even when poor performance continues for relatively long horizons”. A possible solution in order to increase the performance of the companies could be the participation of the managers in international conferences because Italian firms that send their managers on international study trips are characterised by higher sales and productivity (Giorcelli, 2019, p. 150). Moreover, Carter, et al., (2019, pp. 1-2) claim that “Organizations engage in succession planning programs (SPPs) to identify high potential managers who will be the next generation of leaders”.

Job satisfaction and psychological contract fulfilment are also significant predictors of managerial turnover because the turnover of the management appears to be mitigated in cases where the leaders of the companies develop strong relationships with the managers (Collins, 2010, p. 736).

Moreover, managers play a crucial role in the performance of the companies and they are responsible for the strategies of the firms and for the achievements of the employees, therefore the executive turnover can be considered as a critical event which has negative effects on the performance of the firms (Gjerløv-Juel, 2019, p. 794). In particular, Gjerløv-Juel (2019, p. 797) states that “executive turnover implies a depletion of human and social capital and potentially disrupts organizational routines and social structures, leaving the post-turnover organization less efficient”. Moreover, a high turnover rate can increase the costs and reduce the effectiveness towards current and potential customers (Katsikea, et al., 2015, p. 368).

The turnover of the managers can be also considered as a determinant of the post-bankruptcy failure of the small businesses (Cepec & Grajzl, 2021, p. 555).

However, the data and the information concerning the managerial replacements in the business sector have some limitations, therefore the present study is carried out taking into consideration football data. Indeed, the firms fire the managers deemed responsible for poor performance but the data on these within-firm dynamics are scarce and, consequently, it is difficult to assess the value of firing a manager (Koning, 2003, p. 555).

In particular, the analysis of the context of sport in order to make a parallelism with the context of the management of the companies has several advantages such as the frequency and regularity of the football events, the transparency of changes in human resources and the clarity of outcomes (Szymanski, et al., 2019, p. 306). As claimed by Szymanski, et al., (2019, p. 309) there are important similarities between football teams and traditional organizations such as “a mutual concern for competing externally, cooperating internally, managing resources strategically, and developing appropriate organizational processes, systems and structures”.

Furthermore, the context of professional football makes it easier to assess the effective importance of managers because the performance of the football team is publicly observable on a weekly basis and the coaches move between teams more frequently than firms’ managers do, so observing the same manager into different organizations is useful to evaluate the actual manager’s contribution to the overall success (Muehlheusser, et al., 2018, p. 787).

Moreover, Bucciol, et al. (2019, p. 2) identify four main advantages of focusing the attention on the Italian Serie A that are:

- the strong competitive pressure exerted on football coaches which leads to the fact that “coaches’ choices over their team composition are highly incentivized real-world decisions made by experienced managers”;
- the usefulness of the data in order to “symmetrically investigate the short-run effects of wins and defeats on risk taking”;
- the definite accountability of football coaches with regard to tactical decisions;
- the possibility to easily analyse “the role independently played by the number of consecutive outcomes that occurred , their intensity and their expected vs. unexpected nature in shaping the managerial attitudes towards risks”.

Into this context it is also possible to obtain precise and defined information about the impact of managerial features on the performances of football teams and, in the same way, on the performances of firms.

Indeed, Koning (2003, p. 555) asserts that in the context of football the data on the teams' performances and on the dismissals of the managers are publicly available and well-publicized thus giving the opportunity to evaluate the impact of firing a coach on the performance of the teams.

Furthermore, according to ter Weel (2011, p. 280) the use of football data in order to analyse the impact of manager turnovers on firms' outcomes is due to five main reasons that are:

- the performance of the football clubs can be measured “directly and on a weekly basis” while the performance of the firms is measured “indirectly through financial statements and on a yearly basis” and, in particular, using weekly data is useful because the short period of time allows to isolate the effect of the turnover of the managers on the performance;
- the measure of the performance is well defined since the result can only be win, draw or loss whereas “different business firms rely on different accounting measures, which can make performance look different under different schemes;
- the decisions of the football coaches concerning players bought and sold are directly observable and become effective immediately while the strategies of the business managers are long term oriented and they become effective after longer periods of time;
- the homogeneity of the football industry makes the comparison across clubs easier;
- the significant characteristics of the coaches, such as their past performance and their experience as soccer players, are available and publicly observable whereas the information about human capital and working experience of the CEOs of the firms is mostly unavailable.

Therefore, the aim of this current study is to analyse the effect of the in-season dismissals of the managers on the performance of the firms by using data concerning the football teams of the Italian Serie A from the season 2007/2008 to the season 2016/2017.

In particular, the choice of the first division of soccer in Italy is due to the fact that the Serie A is one of the most important football leagues in the world in terms of revenues, stadium attendance and media coverage (De Paola & Scoppa, 2012, p. 155).

Moreover, starting from the season 2011/2012 and up to the season 2016/2017, only the first three teams of the final ranking qualified for the UEFA Champions League and this could have an impact on the expectations towards the coaches and on decisions of the directors of the clubs to dismiss the football managers in order to achieve the qualification for the lucrative European competitions that provide visibility and high revenues.

In particular, the first chapter is focused on the analysis of the role of the managers and of the impact of their abilities and choices on the sports performance of the football teams. The second chapter concerns a review of the literature about the determinants of managerial turnover and the effects of the dismissals of the coaches on the sporting and economic performance respectively. Finally, in the third chapter there is the quantitative and statistical analysis of the impact of the in-season managerial replacements on the sports performance of the football teams in the Italian Serie A, which is also useful in order to understand all the different reasons behind the decisions to fire the managers.

1. CHAPTER ONE – The football coaches

1.1 The role of the manager

A fundamental figure into every type of organization is that of the manager, called coach in the context of football. Indeed, managers play a critical role in determining the performance of their organization. The roles of the football coaches and of the managers of the companies are characterised by analogous challenges such as dealing with internal and external stakeholders, adapting the strategies to different environmental conditions and managing highly skilled professionals (Szymanski, et al., 2019, p. 310).

The coaches of football clubs, in broad terms, are divided into two categories that are the UK managers and the coaches who work elsewhere. Indeed, the coaches who work in the UK have a complex role which also embraces the activities typical of a team manager and a technical director while the coaches who manage a football team in the rest of the world are strictly responsible for the sports side (Trequattrini, et al., 2016, p. 4). Indeed, the coaches of the Italian football clubs, unlike the managers of the football clubs of the English Premier League, are not directly involved in scouting and player trade activities (Buzzacchi, et al., 2021, p. 770).

1.2 The distinctive abilities of the coaches

1.2.1 Communication skills

In particular, modern coaches cope with a lot of stakeholders such as football players, fans and various media, so they need psycho-pedagogic skills to screen football players and train them, leadership skills in order to lead the team to achieve the main objectives encouraging a sense of initiative in each member of the team and technical-tactical skills to create a competitive advantage by implementing a tactic which is in compliance with the characteristics of the football players and by explaining to the players the right strategy to succeed in the football match (Trequattrini, et al., 2016, p. 4).

A fundamental aspect to take into consideration, concerning the aforementioned psycho-pedagogic and leadership skills, is the impact of coaches' expressions of pride, shame and happiness on the emotions of the football players and on the performance of the team, which finds evidences in the paper of Moll & Davies (2021, p. 1). Indeed, the emotional expressions of the coaches influence players' emotions especially when players hold a close relationship with the coach and, moreover, coaches' display of pride and happiness improves the performance of the players whereas the display of shame does not (Moll & Davies, 2021, p. 1).

The coaches' nonverbal emotional expressions of pride and shame can have different effects on football players' emotions and performance and, in particular, the display of pride is associated with increased motivation and enhanced confidence, therefore it leads to a significantly better performance, whereas the display of shame is usually associated with low satisfaction and with a null or a negative effect on performance (Moll & Davies, 2021, pp. 2-3).

Consequently, even if there is a well-defined link between the current emotional state of a person and his/her nonverbal emotional expressions, given that in such a way the different emotions are associated with specific universally recognized and unequivocally interpretable nonverbal expressions, there are situations in which the individuals try to control and manage the emotions that they show to the others and this happens, for example, in the context of football where the managers deliberately display or suppress their nonverbal emotional expressions because they can influence players' performance and commitment given that within high-level performance environments, such as the football context, coaches have a strong trusting relationship with the players (Moll & Davies, 2021, pp. 2, 10).

Moreover, the facial and bodily expressions of the coaches are also different with respect to the each emotion, so accordingly when football coaches display pride they exhibit upright posture, chest expanded, shoulders back and small smile while when the managers display shame they are characterised by the head tilted downward, downcast eyes, chest narrowed inward and shoulders slumped forward (Moll & Davies, 2021, p. 4).

The linguistic choices of football coaches are also relevant in the post-match media interviews which represent fundamental means through which the supporters of the club and the media professionals construct their impressions and opinions about the abilities and the identities of the managers (File, 2018, p. 56). Indeed, the linguistic behaviour of football coaches is essential in order to manage the impressions in the media interviews with the aim of showing strong and dominant identities that are necessary for the authoritative role of the manager who is the face and the voice of the football team and who is, also, directly accountable for performances and results (File, 2018, p. 58). Therefore, the management of the impression can be considered as the management of the identity because it is associated with the coach's ability to construct social meanings in order to be positively perceived by supporters and interlocutors (File, 2018, p. 68). Evidence concerning the importance of open communication and performance feedback in the context of football is provided by the research conducted by Salcinovic, et al., (2022, p. 12) who report that the quality of the communication within a football team is associated with both the injury rates and the players availability and, as a consequence of this, the football teams that have a high internal communication quality are characterised by lower injury rates and higher players availability than the teams where the internal communication quality is low.

These results are due to the fact that the high communication quality between individuals who play different roles is essential in order to promote collaboration while low communication quality leads to misunderstandings, one-side decision making and high stress, thus increasing the rates of injuries (Salcinovic, et al., 2022, p. 12).

1.2.2 Cognitive activities

Additionally, as stated into the research conducted by Szymanski, et al., (2019, p. 307), football managers are required to engage in three specific cognitive activities that are:

- *Sensing*, which is the ability to recognize opportunities and threats thanks to their perception and attention;
- *Seizing*, which is the ability to take high-quality and interrelated strategic decisions, thanks to their competencies of problem solving;
- *Reconfiguring*, which is the capacity to recombine the assets in response to the quick variations of the competitive environment.

1.2.3 Administrative competences

Furthermore, the study conducted by Afyon, et al., (2014, p. 753) investigates the administrative competence levels of football coaches with respect to 9 dimensions that are “people management, purpose and action management, supervision and evaluation, communication, knowledge of regulations, ethic competence, reinforcement, use of technology and organizational climate”. The results of the research demonstrate that as coaches’ professional experience and length of service increase, their administrative competence levels also increase, so that coaches can improve the level of efficiency of the football players and the collective performance of the team (Afyon, et al., 2014, pp. 752-754).

1.2.4 Cultural background

Moreover, Szymanski, et al., (2019, pp. 305-307) assert that a fundamental trait of football coaches which has a significant impact on teams’ performance is their cultural background because “When the competitive environment is highly global, teams with multicultural managers outperforms teams with monocultural managers” because multicultural backgrounds affect the cognitive structures and the dynamic capabilities of football coaches, which consist of competencies to combine and harmonise organizational resources and skills in order to achieve the requirement and the opportunities of the competitive environment.

In particular, a coach is considered to have a multicultural background if he/she has migrated to another country or if he/she is the descendant of immigrants, where the concept of migration specifically refers to a long-term (at least five years), even though not necessarily permanent, relocation, while coaches with a monocultural background are citizens of a single country who have not experienced a long term exposure to other cultures (Szymanski, et al., 2019, p. 306). Furthermore, highly global competitive environments change quickly and they are characterised by the unpredictability of the environmental changes and by high variety as a consequence of different regulatory contexts, stakeholders and languages, therefore coaches into such environments need to be flexible and able to promptly react to variations in the levels of competition, regulation, technology and demand (Szymanski, et al., 2019, p. 307).

In the context of football, the cultural backgrounds of the coaches have also a different impact on the remarkable activities of sensing, seizing and reconfiguring (Szymanski, et al., 2019, p. 308).

In particular, the paper of Szymanski, et al., (2019, p. 308), which focuses on national teams that are free to choose their coaches regardless of their nationalities, states that:

- concerning the act of sensing, monocultural managers have high familiarity with the opposing team so they are able to promptly anticipate competitive strategies while multicultural managers appears more capable of seeking out new talented player around the world because their attention is broadly oriented and they are focused on distant and unfamiliar opportunities and threats;
- concerning the act of seizing, monocultural managers are able to develop tailored game plans in advance in order to defeat local competitors while multicultural managers seems to have a wider repertoire of game plans and strategies in order to deal with different potential threats;
- concerning the act reconfiguring, monocultural managers create core competencies around key personnel and players while multicultural managers build the competitive advantage around flexibility and improvisation.

As a result, coaches with monocultural backgrounds seem to prioritize efficiency over flexibility by focusing on long term planning and local specialization conferring competitive advantage into local or regional competitive environments, and therefore these managers are expected to have a positive impact on the performance when the competitive environment is less global while the multicultural managers, whose attention is focused on culturally distant opportunities and threats, will be less successful in local or regional environments where the competition is culturally proximate (Szymanski, et al., 2019, p. 308).

Szymanski, et al, (2019, p. 307) also claim that multicultural managers are attracted by “cognitively distant opportunities” while managers with monocultural background “capitalize on opportunities that are cognitively proximate [so] closer to the manager’s predominant domain of experience and his or her organization’s native cultural context”.

1.2.5 Leadership

A remarkable managerial characteristic which affects individual and team outcome in soccer is coaches’ identity leadership that is positively related to higher team effort, lower turnover intentions and better performance as demonstrated by the research conducted by Krug, et al., (2021, p. 1) considering male soccer players in Germany.

Specifically, in the same study, team effort is defined as the commitment of resources, such as energy and time, by football players towards the execution of the team’s tasks while turnover intentions concern players’ willingness to terminate, instead of retain, the membership in the football club (Krug, et al., 2021, p. 2). As regards turnover intentions, the research in question demonstrates that coaches who exhibit identity leadership are able to hold the players together in the team and to discourage them from quitting. Therefore, the coaches’ identity leadership is based on the ability of football managers to construct a sense of “we” and “us” among the members of the football team so as to make them feel part of the group and in order to achieve common goals (Krug, et al., 2021, pp. 1-5).

Leaders’ capacity to build a sense of “we-ness” and shared social identity motivates players to align their emotions and actions and to adopt a collective behaviour with the aim of satisfying the shared objectives of the group because players’ identification with the team is strengthened (Krug, et al., 2021, p. 2). Indeed, charismatic leaders with great communication skills are able to influence the values and the attitudes of the members of the team in order to motivate them and to increase the group identity and cohesion, thereby enhancing the performance. (Salcinovic, et al., 2022, pp. 4-5). Thus, the leadership behaviour is important for the team as a whole in order to create an interpersonal environment characterised by mutual respect, support and trust between coaches and players, so such a leadership behaviour has a positive influence on the well-being of the team and it seems, also, able to reduce the risks of severe injuries when it is communicated in a clear and positive way (Salcinovic, et al., 2022, p. 7).

Furthermore, the study conducted by Bayansalduz, et al., (2014, p. 500) investigates the self-leadership characteristic of football coaches which is defined as “the individual process of motivating oneself, controlling behaviours and leading oneself” by using cognitive and behavioral strategies in order to achieve personal and organizational objectives.

Indeed, self-leadership is seen as the basis of shared leadership because managers need to be able to lead themselves in order to be able to lead football players. The results of the research demonstrate that there is a positive relation between coaches' self-leadership and their length of service so that "football coaches with longer coaching experience have higher self-leadership attitudes compared to other coaches" (Bayansalduz, et al., 2014, pp. 500-502).

1.2.5.1 Athlete Leadership Groups

Coaches can also adopt Athlete Leadership Groups by distributing the power of decision making among selected team members empowering them with leadership responsibilities, as a consequence of the belief that peer leadership can improve the performance and enhance the management of the team (Haddad, et al., 2021, p. 1).

In particular, athlete leaders are usually more competitive, resilient and confident than their teammates and they are endowed with good motivational and communication skills. Consequently, high quality athlete leadership is really useful in order to increase motivation and well being, enhance team resilience and cohesion and improve team identification and team confidence (Haddad, et al., 2021, p. 2).

Moreover, the adoption of this decentralised approach can reduce the conflicts within the team and it can provide consistency and continuity of leadership by sharing the responsibilities with the players who contributes to achieve both on-field and off-field objectives in a more effective and efficient way because they feel comfortable to express their opinions and they are able to transfer the decisions of the coach to the rest of the team, thus increasing the commitment to common goals (Haddad, et al., 2021, pp. 2-6).

However, the effectiveness of shared leadership depends on the leaders' self-awareness, on peer acceptance and on the emotional connection between the leaders and their teammates.

However, as Haddad, et al. (2021, p. 8) report into their research, in the professional sport context the pressure on coaches to deliver immediate results is at odds with the shared leadership approach because "leaders' confidence to delegate is tied to their sense of job security", thus the use of Athlete Leadership Groups by football coaches is related to their perception of the management support and to their estimate of the time and effort required to develop this model.

1.2.6 Managerial risk-taking

Moreover, a way through which managers can affect the performance of a football team is by defining the initial formation which is characterised by three or four numbers which specifies the number of players in each sector of the football field. Furthermore, the initial formations are officially announced by the opposing managers approximately one hour before the kick-off of the match. According to Mesoudi (2020, p. 1) managers' choices with respect to the formation are more affected by their past success with that formation, so by their personal information acquired directly from experience, than by social information related to other managers' success with that formation.

Furthermore, according to Bucciol, et al., (2019, pp. 1-2) coaches' decisions with respect to the initial system of play can be influenced by a change in the managerial risk-taking as a consequence of prior outcomes and, in particular, "single defeats and heavy defeats make the coaches more risk seeking" so that they opt for a more offensive system of play, while "multiple defeats make the coaches less risk seeking" since they adopt a more defensive system of play, even if this is not the case in the top teams where the managerial risk-taking appears to be "not sensitive at all to prior outcomes, regardless of their positive or negative direction" because top teams pursue specific objectives set by the owners of the football clubs at the beginning of the season. Moreover, coaches are more likely to change the system of play, either in a more offensive way or in a more defensive way, after negative outcomes rather than after a positive result, even if this change of the initial formation setting "does not pay off, in terms of match outcomes, and it might even be counterproductive" as it is demonstrated by Bucciol, et al., (2019, pp. 6-8).

Therefore, in the study of Bucciol, et al., (2019, pp. 2, 4), which focuses on the playing seasons of the Italian Serie A between 2009 and 2016, the change in the system of play of the initial formation is considered a suitable proxy of the change in the managerial risk-taking, in such a way that the decisions to adopt an initially more defensive or more offensive system of play are interpreted as an indication of respectively lower or higher willingness to take risks on the part of the football manager.

Moreover, coaches' variations of the system of play through substitutions of players during a football match can also be the results of changes in the coaches' risk-taking behaviour (Bucciol, et al., 2019, p. 4). In particular, Amez, et al., (2021, p. 1) investigate the impact of the substitutions of the players on the goal-scoring probability of international soccer clubs in order to analyse the effectiveness of the decisions implemented by the coaches with the aim of influencing the game, once the game has started.

Therefore, Amez, et al., (2021, p. 1) demonstrate that the goal-scoring probability of a football team increases after the first and second substitution while it decreases after the opposing team makes the three substitutions. However, the change in the goal-scoring probability is smaller immediately after the substitutions as a consequence of the fact that the substituted player needs some time to adapt to his/her role within the team dynamics and to the intensity of the game and also as a consequence of the fact that the entire team need some time to implement the new tactical plan on the field (Amez, et al., 2021, pp. 1-2).

In the same study, there is also evidence of the fact that making a substitution when a team is losing is associated with an increase in the goal-scoring probability of the football team (Amez, et al., 2021, pp. 5-6).

Furthermore, the coaches have also an impact on the team's playing style and Muehlheusser, et al., (2018, p. 804), by analysing the impact of football managers on the success of professional soccer teams of the German Bundesliga, find that "better managers are those who prefer their team to play defensively [because of] a negative correlation between the offensive style and the performance" and this is consistent with the claim of American Football coach Bear Bryant who stated "Offense sell tickets, defense wins championships".

1.2.7 The technical-tactical innovation

The technical-tactical innovation embedded into the tactics implemented by the coaches has an impact on the value creation process of professional football clubs by directly affecting the economic and sports results because it represents a source of competitive advantage in medium term, but not in the long term because a successful technical-tactical strategy can be replicated by different managers and there are no legal methods to protect this innovation. (Trequattrini, et al., 2016, pp. 1-4).

The study realised by Trequattrini, et al., (2016, p. 11) points out that the football teams able to create winning cycles are those which combine the talents of the players with the technical-tactical innovation being able to maintain, for a certain period of time, the competitive advantage and, according to this statement a fundamental determinant of the performance of football teams and, in the same way, of firms is the sustainability of the competitive advantage.

1.2.7.1 The sustainability of the competitive advantage

According to the resource-based view of companies, there are two main properties which determines whether the competitive advantage is sustainable and these are the imperfect mobility of the resources which are considered strategic and the presence of ex-post limits to competition (Trequattrini, et al., 2016, p. 11). In particular, according to the same authors, the resources are considered perfectly mobile when “they would lose part of their value if used in a different context from that in which they were created and accumulated” and in the sector of football this happens when “players only are at ease when playing in a certain game formation”. On the other hand, “isolating mechanism” are implemented by companies in order to limit the possibilities of imitation on the part of competing firms and, simultaneously, in the context of football the only way to protect the competitive advantage is to develop highly complex knowledge and competencies which are perfectly integrated with other elements in the football club, because the more complex an innovation is the lesser the risk of it being imitated and because the high complementarity with other elements reduces the risk that the new strategy can be worthwhile in a different team (Trequattrini, et al., 2016, pp. 11-12).

1.3 The impact of football coaches on team performance

1.3.1 Empathy

The study of Detotto, et al., (2018, p. 270) takes into consideration the impact of managerial characteristics on the performances of football teams and, particular, it focuses on the Serie A during seasons 2000/01 – 2009/10. According to this study, a managerial characteristic which has a positive impact on the performances of football teams is the empathy of the coach with the club and this is related to the fact that the manager had been a player or an assistant manager for the same club. Indeed, if this is the case, a coach can take advantage of the fact that he/she already knows the environment of the club and he/she is already known by the fans, so he/she can have more support increasing the chance of success (Detotto, et al., 2018, pp. 270-272).

1.3.2 Managerial experience

Another relevant characteristic is represented by the managerial experience of the coach which is positively correlated with the performances of football teams and which is important to convince football players to work hard in favour of the team (Detotto, et al., 2018, p. 272). In particular, Detotto, et al., (2018, p. 275) find that “When the manager is inexperienced, he/she has a negative impact on the numbers of goals that the team scores both at home and away” while “a manager who has been a previous player with the club significantly improves the

defensive skill of the team”. Two additional characteristics are the age and the nationality of the managers and the results of the research conducted by Detotto, et al., (2018, p. 270) demonstrate that “Italian managers are more defensive in home games while older managers are more defensive in away games”. In particular, the importance of the defensive phase in the football games of the Italian Serie A is also evident by analysing the results of the research conducted by Zambom-Ferraresi, et al., (2018, p. 26) who demonstrate that the two most important determinants in order to obtain good results into the first division of soccer in Italy are the tackle attempts and the recoveries. Therefore, a direct consequence of these results is the fact that the coaches of the Italian football teams are focused on improving the defensive efficiency instead of the offensive efficiency, so they accordingly base their game plan on ball possession in midfield or in the defensive areas (Zambom-Ferraresi, et al., 2018, p. 26).

1.3.3 Managers’ background

Moreover, an analysis of managers’ background as professional players points out that the football teams of coaches who were former professional players have worse results than the teams of coaches without a professional player career and this can be due to the overrating of famous former football players or to the fact that coaches who were not football players need to be more capable in order to get a job in the top leagues (Muehlheusser, et al., 2018, pp. 806-807). However, as reported in the notes of the study in question, even if this is the case, football teams may nonetheless have the incentive to hire former superstars in order to gain advantage from different benefits such as increased media attention or higher match attendance (Muehlheusser, et al., 2018, p. 817).

1.4 Limitations to the power of the coaches

1.4.1 The sunk-cost effect

According to the study of Hackinger (2019, pp. 2-4), the clubs of the European football leagues have three main options to acquire their players:

- “Train young players to a professional level”;
- “Sign players whose contracts expire or who are currently without an employer and therefore free of charge”;
- “Compensate competing teams to sign one of their players with an ongoing contract” by paying transfer fees which can be different from the market values of the players because the amount of the transfer fees can be affected by different factors such as the remaining duration of the contract.

Moreover, as stated in the same research, besides definitive players transfers, European football teams can also lend and borrow football players and if this is the case the “players on loan remain under contract with the lending team [but] they are an inherent part of the borrowing team’s roster and are not allowed to play for the lending team”. The choice of this type of transfers is due to the fact that these football players usually have a high potential that the manager wants to test prior to the final transfer or they are young talented players that prestigious football teams lend to lower ranked teams in order to give to these players the possibility to have more playing time and opportunities to prove themselves (Hackinger, 2019, p. 4). In addition to these reasons, Hackinger (2019, p. 4) claims that “a loan can [also] be an emergency replacement for an injured or suspended player that is only needed until the absent player returns” or it can happen that “teams borrow players to increase the overall team size and/or quality in the short term”. Moreover, similarly to permanent transfers, Hackinger (2019, p. 4) remarks that “teams can lend a player entirely for free or for a loan fee” and in the last case the amount is similar to a final transfer fee. Furthermore, the club which gives the player on loan chooses whether to fully, partly or not at all pay the wages of the players on loan (Bernardo, et al., 2022, p. 607).

Therefore, a plausible constraint on the coaches’ freedom to choose the players can be the sunk-cost effect which consist of the fact that football teams spend large amounts of money on transfer fees that are sunk costs which are difficult to ignore in the decision-making process, thereby affecting the utilisation of the players (Hackinger, 2019, pp. 1-2).

Indeed, coaches might try to recover the sunk costs represented by the transfer fees by increasing the playing time of the football players on the soccer field with the hope that they will attract potential buyers by performing well and by increasing their perceived ability so that, as a consequence of this, the predicted performance of a given football player is not the only factor considered by coaches when fielding players (Hackinger, 2019, p. 2).

A confounding factor when analysing the impact of the sunk costs on the playing time of football players is represented by the concept of fan appeal according to which famous superstars are more valuable because they lead to an increase of jersey sales and they attract more supporters to the stadium, therefore it could be economically reasonable to concede more playing time to these expensive players (Hackinger, 2019, p. 5).

The study in question confirms that playing time should be considered as an investment in young talented players because it is useful in order to develop their abilities and it is extremely effective in order to enhance the performance in the subsequent year for players who are younger than 22, therefore, past performance appears to be less relevant for football players younger than 22 because, even if they perform poorly, it seems worthwhile to give them a second chance by fielding them (Hackinger, 2019, pp. 14-15).

However, the results of the study conducted by Hackinger (2019, pp. 8-11) demonstrates that football coaches in the German Bundesliga are not susceptible to the sunk-cost fallacy, so that they do not take into consideration the transfer fees when fielding players on a seasonal level; conversely, a fundamental element which affects players' time on the football pitch is the predicted performance.

1.5 Football players: the assets managed by the managers

The role of the managers is directly related to the role of the players and the performance of the football teams can also be influenced by characteristics of the football players of a club or by several aspects specifically related to them.

1.5.1 The talent

The study of Caruso, et al., (2017, pp. 515-516), which is focused on 14 seasons of the Italian Serie A from 2001/2002 to 2014/2015, points out that the talent is a key determinant of the sport performance because the probability of sporting success of the football team is positively correlated with the teams' talent availability whose better proxy is the aggregate wage expenditure of the football clubs.

Concerning the concept of talent, Gledhill, et al., (2017, p. 105) state that psychosocial factors can have an impact on the talent development since psychological factors such as resilience, commitment, discipline and determination interact with external social factors such as coach-player relationships and family influence, and, in addition, these psychosocial factors are interrelated with player-level behavioural indicators such as lifestyle choices and quality of the practice, thus influencing the development of the talent. Furthermore, Gledhill, et. al, (2017, pp. 106-107) assert that coaches can, also, facilitate talent development "by working with players in an autonomy supportive manner" and, simultaneously, parents can contribute to the development of the talent by creating "a parenting climate that fosters task orientation" and by supporting the coach-player relationships.

An additional factor which has an impact on talent development is the early engagement in football since an optimal balance between deliberate practice and deliberate play is associated with higher levels of expertise and, as a consequence of this, the coordination between all the staff members in the football academies appears to be significant with reference to players' development (Sarmiento, et al., 2018, pp. 319, 327).

1.5.2 The monetary compensations

1.5.2.1 Performance-based approach vs Skill-based approach

According to Montanari, et al., (2008, p. 39) the monetary compensations of the football players can in turn be influenced by the performance and by the individual characteristics of the football players and, in particular, the dynamics of players' salaries in the Italian Serie A are based on non-traditional compensation systems that are the performance-based approach and the skill-based approach.

The performance-based pay plans are used by the football teams in order to motivate the players to maximize the effort and the commitment and they are, also, sorting devices which solve the agency problems by attracting only the most capable players (Montanari, et al., 2008, p. 30). Therefore, the individual players' performances are positively related to their wages and, in addition, there is also a positive relationship between the performance of the whole football team and the wages of the single players since football is a team sport (Montanari, et al., 2008, p. 34). On the other hand, according to the skill-based approach, players' experience acquired on the field, which enhances individual skills, is a fundamental factor in the context of football that is characterised by complexity and unpredictability, thus there is a positive relationship between the experience of the football players and their wages since, as players acquire greater expertise, they improve their abilities, they enhance their knowledge of the football club and they accumulate human capital (Montanari, et al., 2008, pp. 30-33).

1.5.2.2 Reputation & popularity

Furthermore, Montanari, et al., (2008, p. 40) state that the wages are also positively influenced by the individual reputation because the football players who played for prestigious teams have high salaries since "they are supposed to have contributed to the results of their clubs in the previous seasons" and, additionally, their reputations have an impact on the expectations of the supporters which leads to "an increase in revenues from season tickets, sponsors and media".

Moreover, the salary-setting mechanisms are not only based on sporting performance, talent and athletic qualities of the football players because they are also influenced by the football players' popularity as consequence of the widespread use of the social networks that increase the international visibility and the economic impact of these icons, by transforming the football players into global brands (Bernardo, et al., 2022, p. 595).

Indeed, the presence of famous players in the football clubs improves the popularity of the brands and increases the profits derived from merchandising, sponsorships and broadcasting rights and a direct consequence of the relevant impact of these superstars is their growing bargaining power which leads to higher wage demands (Bernardo, et al., 2022, p. 596). Consistently, the management of the brand is fundamental for the football clubs in order to create long term relationships with the supporters who have a strong emotional attachment to the club (Guenzi & Nocco, 2006, pp. 99-100). Therefore, Bernardo, et al., (2022, pp. 597, 606) come to the conclusion that "even though 'image is not everything', it has a crucial role in salary setting dynamics" because the results of the research show that the amount of Instagram followers and the international reputation of football players have a positive impact on their wages.

Thus, football clubs seem to reward the players also for their role off the field since modern athletes are icons that influence and attract digital fans who are not emotionally tied to a specific club and who can be qualified as "a digital asset that sports club can exploit to increase their media impact", as stated by Bernardo, et al., (2022, p. 607).

1.5.2.3 Personality traits & psychological factors

An additional factor which could have a positive effect on the wages of the football players is the effort, that is measured as the total distance run per player and per match, since this factor has a positive effect on the performance of the football team, as Weimar & Wicker (2017, p. 140) demonstrate in their research which is focused on the professional soccer teams of the German Bundesliga. Indeed, Weimar & Wicker (2017, p. 151) prove that "teams where players cover on average longer distances than the opponent have a higher winning probability" because it is fundamental that "players run constantly and position themselves well".

However, the effect of the effort on players' market values, which are used as proxies of the wages, is insignificant and this result could be the consequence of the presence of a Moneyball phenomenon in the context of football, according to which the labour market in football undervalues the effort of the players (Weimar & Wicker, 2017, p. 141).

Besides talent, key determinants in order to become elite football players are passion, grit and mindset since these personality factors predispose players to withstand the effort and to devote a lot of time to training, which is essential to improve skills, abilities, tactical knowledges and physiological status (Sigmundsson, et al., 2022, p. 1). However, passion is the most important factor in order to achieve success and it is essential for the members of the elite teams because it affects the well-being and the motivation of the players to perform in highly stressful situations and it is, also, a relevant determinant of players' performance (Sigmundsson, et al., 2022, p. 4).

The positive effects of the psychological factors on football players' performances are also demonstrated by Ivarsson, et al., (2020, pp. 415-418) who state that the performance in the context of football is positively influenced by the task orientation and the task-oriented coping strategies such as mental preparation, concentration and goal commitment. Furthermore, the same authors claim that the performance is also positively related to precipual-cognitive functions such as mental flexibility and working memory because football players have to process information and make appropriate decisions in an unpredictable environment (Ivarsson, et al., 2020, pp. 416-417).

1.6 Home advantage: the relationship between the football coaches and the home crowd

Leitner, et al., (2022, pp. 3-4), state that the home advantage in the professional sports is primarily the result of game location factors which affect the home and away team in a different way and, in particular, the most important of these factors are:

- the *crowd factor*, which is related to the fact that “the home team receives greater support at home than the visiting team”;
- the *learning/familiarity factors*, according to which “the home team is better acquainted with the location and also has the possibility to redesign it” by, for example, watering the lawn;
- the *travel factor*, which is associated with the fact that the away teams have to travel.

The home field advantage has a positive impact on the performance of the football team (Szymanski, et al., 2019, p. 311). Moreover, the advantage of playing the football match in the home stadium is mainly due to the presence of the supporters of the club because, as stated by Leitner, et al., (2022, pp. 2, 17), “fans have indeed a significant impact on home advantage in

professional football” and they are able to influence the result of the match in favour of the home team so, for this reason, the supporters of a football team are usually referred to as the “12th man”. Therefore, the absence of the fans causes a reduction of the home advantage and, as a consequence of this, the home team is less likely to win matches played behind closed doors (Bryson, et al., 2021, pp. 1-2).

As a consequence of this, the presence of the crowd is a fundamental external determinant of economic and sporting success because it has a significant impact on the performance of the football teams and also on the behaviour of the referees, leading to the so-called referee bias which is caused by the social pressure exerted by the supporters of the home team (Leitner, et al., 2022, pp. 2, 19).

The importance of the attendance of the fans into the stadiums has been particularly analysed during the period of the Covid-19 pandemic because the global pandemic led to the creation of laboratory-like conditions into the stadiums that are useful in order to analyse the influence of the supporters on the decisions of the referees and on the motivations of the players (Leitner, et al., 2022, p. 2). Indeed, due to the Covid-19 pandemic, the games of the professional football leagues were suspended for a few months and resumed in the form of ghost games without supporters due to the social distancing measures and restrictions adopted by governments all around the world (Leitner, et al., 2022, p. 2).

In particular, concerning the referee bias, Bryson, et al., (2021, pp. 2-3) assert that in the matches played behind closed doors fewer yellow and red cards are awarded by the referees to the away teams compared with when the fans are present and this is due to the fact that the absence of the supporters of the home team decreases the social pressure on the referees to punish the away team harshly, thus causing different punishment patterns with respect to when the crowds are present.

Ramchandani, et al., (2021, p. 356) demonstrate that the home advantage can be practically computed as the ratio of the points obtained by the teams in home matches to the total points achieved by the same football teams both in home and away games. Moreover, the home advantage computed in this way seems to be negatively correlated with the ability of the football clubs in the English Premier League because low ability teams exhibit a significantly greater home advantage than high ability teams, considering the position in the final league ranking as a proxy for team ability, and this is a consequence of the fact that the best teams win the majority of their matches both at home and away while the football teams characterised by low ability are focused on obtaining the majority of their points at the home stadium (Ramchandani, et al., 2021, pp. 355, 359).

In conclusion, the home advantage is a factor which can also be influenced by the managers of the football teams because, apart from the case of the ghost games due to the Covid-19 pandemic, the good performances of the football clubs, for which the coaches are directly accountable, can encourage the attendance of the supporters, thus leading to an increase of the home advantage.

Therefore, the home advantage of the football teams is directly related to the improvements in the quality of the teams thanks to the ability of the coaches (Balduck, et al., 2010, p. 687).

1.7 Environmental factors beyond the control of the managers

The performances of national football teams are also positively affected by environmental factors that are beyond the control of the managers such as the population of the country, which influences the size of the pool of the available football players for the national team, and the football tradition, which refers to the football's popularity in a given country and also to the familiarity with international competitions (Szymanski, et al., 2019, p. 311).

2. CHAPTER TWO- The impact of managerial turnover on sports performance and economic performance

2.1 The context of professional football

The coaches of the football clubs and, in the same way, the managers of the firms are crucial subjects since they are required to undertake fundamental operative and strategic decisions (De Paola & Scoppa, 2012, p. 153).

Indeed, the managers of the business companies and the coaches of the football clubs are professional figures that share peculiarities such as the direct accountability for the performance within the area under their responsibility, the duty to report to the board of directors, that is in charge of deciding about the replacements of the employees, and the necessity to manage the pressure of the stakeholders and the widespread media coverage (Pieper, et al., 2014, p. 6). The high pressure on football coaches can also be due to the fact that fans and journalists tend to underestimate the level of competitiveness of the football sector in which it is increasingly difficult to achieve predetermined objectives (Fry, et al., 2021, pp. 449-451).

Moreover, the dismissals of the managers are frequent both in the business companies and in the football clubs (De Paola & Scoppa, 2012, p. 164).

Therefore, the context of football, more than other industrial sectors, provides a useful environment in order to analyse the precariousness of the role and the effectiveness of the decisions to dismiss the managers since the football clubs have well-defined objectives that are measurable and public observable and because the media coverage of football makes it easier to distinguish dismissals and voluntary resignations (Flores, et al., 2012, p. 653).

Furthermore, in the football sector, the data about the performances of the teams and the turnovers of the managers are transparent and they can be examined at a higher frequency than the accounting-based measures used to analyse the turnovers of the CEOs in the business companies (D'Addona & Kind, 2014, pp. 153-154).

An additional advantage of using football data is represented by the fact that the choices and the characteristics of the managers as well as the results of the football clubs are directly observable without uncertainty (ter Weel, 2011, p. 279). Moreover, in a homogeneous industry, like that of football, it is easy to monitor the performance of the clubs and to identify situations of poor management which need to be resolved (ter Weel, 2011, p. 296).

Finally, according to Semmelroth (2022, p. 96), a further advantage of using football data in order to analyse the managerial turnover is represented by the fact that the performances of the coaches can be directly evaluated by taking into account the expectations of the market that are reflected by the betting odds.

2.2 Managerial replacements

In particular, in the context of football the coaches are held directly accountable for teams' performances and, as a consequence of this widespread thought, football clubs really often dismiss their coaches, when things do not go as planned, with the aim of improving the performances of the players and, consequently, the sports results of the teams. In particular, the threat of dismissing a manager due to bad performance is considered a powerful mechanism in order to ensure adequate effort, thereby increasing the performance of the football team (D'Addona & Kind, 2014, pp. 150-151). Therefore, the coaches may be fired in order to make credible the threat of the dismissal even if the poor performance is merely the consequence of bad luck and a better successor is not available (D'Addona & Kind, 2014, p. 174).

It is relevant to observe that, in the main football leagues in Europe, the rate of manager turnover is high due to the remarkable frequency of within-season managerial change because, in order to try to increase the performance of the team, it is easier to replace a manager than to replace a whole team. (Muehlheusser, et al., 2018, pp. 790, 801).

This substantial number of dismissals makes it possible to test statistically whether the strategy of firing a manager is effective in order to achieve the objectives of the clubs and whether these drastic choices are mainly due to poor performances indicators or to the need to appease the supporters by providing them with a scapegoat (Flores, et al., 2012, p. 653).

2.3 Determinants of coach dismissals

2.3.1 The scapegoating hypothesis

According to the scapegoating hypothesis, the decision to fire a coach has usually an irrelevant impact, or even slightly negative, on the performance of the football teams and it can even worsen the situation by generating short-term disruption effects which lead to negative results and economic losses (Flores, et al., 2012, p. 653). However, the negative effects of coach dismissals could be stronger in the away games and moderated in the matches played in the home stadium thanks to the support of the appeased fans, as demonstrated by Flores, et al., (2012, p. 659) with respect to the context of football in Argentina.

The on-the-field benefits of appeasing the fans by dismissing the coaches of the football teams are also confirmed by Tena & Forrest (2007, p. 362) who point out the relevance of the crowd support in positively influencing the outcomes of the football matches in the first division of the Spanish Football League. Indeed, the decisions of the directors to fire the managers can rekindle the enthusiasm of the disappointed crowd and this in turn can have an impact on the home advantage by affecting the performances of the home teams and the decisions of the referees (Tena & Forrest, 2007, p. 364).

The scapegoating theory is also confirmed by De Paola & Scoppa, (2012, p. 165) who claim that the owners of the football clubs may decide to fire the coaches just in order to appease the disappointed supporters and with the aim of displacing the blame for the bad performance away from themselves. However, the extremely high uncertainty of the football manager's role seems to be rewarded by a scapegoat premium which is included in their wages (Besters, et al., 2016, p. 351). Indeed, there is a positive relation between the turnover risk and the compensation because a greater risk of the manager being fired is associated with a higher level of compensation (Pieper, et al., 2014, p. 20).

2.3.2 The shock effect

In order to understand the reasons that lead to the dismissals of the managers, it is valuable to observe that even though performances are poor, as a consequence of bad relations between managers and players, the disagreement remains hidden until a shock happens such as a severe defeat, an elimination from an important competition or supporters' objections (Detotto, et al., 2018, p. 272). The dismissal of the coach can also be a direct consequence of the deterioration of the relationship between the coach and the team or the coach and the board of directors (Koning, 2003, p. 562).

Koning (2003, p. 556) asserts that a possible explanation behind the decision to fire the coach, when results fall short of expectations, is provided by the concept of the shock effect according to which "the new coach is able to motivate the players better, and therefore is able to improve results". However, the shock effect is short-lived since it appears to wear off after few games (ter Weel, 2011, p. 288).

An additional reason for the dismissals of the coaches can be the perception of the relationship between the decision to fire the manager and the improvement in the performance of the football teams because the owners of a club who decide to dismiss a manager, without having an improvement in the results, at least try to do something to change the situation instead of giving up, thus deciding not to act (Besters, et al., 2016, p. 350).

Consequently, De Paola & Scoppa (2012, p. 165) state that the decision to dismiss the coach can also be a direct consequence of the fact that the boards of directors of the football teams “overestimate their own ability to undertake optimal replacements decisions”.

2.3.3 Investments & contract length

According to ter Weel (2011, p. 281), the remaining contract length at the time of the dismissal and the investments made by the coaches in terms of players they bought are two useful predictors for forced turnovers because there is evidence that, during a performance dip, the managers are more likely to be fired when they have invested more in order to buy football players while the coaches are less likely to be sacked when they have a longer remaining contract duration, since their sacking is too expensive.

Indeed, the investments made by managers in order to sign new players can be considered as a measure of the trust that the boards of directors have in the coaches, so that the pressure is higher when they have invested more money, and, on the other hand, the remaining contract length is an indicator of the costs involved in dismissing a coach because, after being fired, the managers receive the remaining salary left on their contracts. (ter Weel, 2011, pp. 286-287).

2.3.4 Performance expectations

In addition, there is also evidence that the tenure of the coaches with the club decreases the likelihood of being dismissed whereas unfavourable deviations from the expected performance of the football clubs have a significant impact in encouraging the dismissal of the managers (ter Weel, 2011, p. 281).

Pieper, et al., (2014, pp. 15-16) analyse the impact of the performance expectations on the probability of involuntary turnover of the football coaches in the Bundesliga and they demonstrate that lower expectations of the board of directors, concerning the performance of a football team, lead to a decrease of the probability of forced managerial turnover whereas high expectations lead to an increase of the dismissal probability of a coach.

Therefore, the directors of the football clubs evaluate the actual performance in relation to their expectations and, as a consequence of this, the managers who are able to meet the expectations about the performance are less likely to be dismissed whereas, on the other hand, when the performance falls below the expected level the replacement of the coaches becomes more likely to occur (Pieper, et al., 2014, pp. 8-9).

Consistently, Semmelroth (2022, p. 110) also claim that in Major League Soccer “team performance above expectations is associated with a decrease in the likelihood of dismissal” because the directors of the football clubs acknowledge the good job of the coaches conditional on the given circumstances.

Moreover, D'Addona & Kind, (2014, p. 152), claim that in the four major English soccer leagues the probability of a manager being dismissed is negatively related to both short-term and long-term performance and, in particular, the sensitivity of the firing probability to recent outcomes has increased over time as a consequence of the fact that coaches are constantly subject to a more intense short-term monitoring due to the increasing competition in the football industry. This concept is claimed also by Pieper, et al., (2014, pp. 15-16) who demonstrate that the performances of the football teams in the Bundesliga are negatively correlated with the probability of managerial turnover, so that better performances lead to a lower dismissal probability.

2.3.5 The risk of relegation

Therefore, although on average the dismissals of the managers can lead to a deterioration of the performances of the football teams, the decision of the board of directors to fire the coach can still decrease the probability of the club being relegated by increasing the volatility of the performance (D'Addona & Kind, 2014, p. 167). The relegation, indeed, gives rise to negative financial consequences that the owners of the football clubs want to avoid (Wilson, et al., 2020, p. 11).

The relevance of the risk of relegation as the main determinant of managerial turnover is also demonstrated in the research conducted by Tena & Forrest (2007, pp. 362, 366) and this is due to the fact that the relegation is the worst prospect for the supporters and it is also cause of financial problems for the owners of the football clubs. Additionally, the threat of relegation is usually faced by the clubs that spend less, therefore the budget of the clubs that fire the managers is typically lower than the budget of the clubs that allow the managers to stay and, in particular, the coaches are usually dismissed when the teams are performing poor relative to the size of the budget (Tena & Forrest, 2007, p. 365).

There is also evidence that the probability of being dismissed is higher for coaches who are older, less experienced and whose teams are in the relegation positions since the owners of these clubs play a gambling for resurrection game (D'Addona & Kind, 2014, p. 152).

2.3.6 The reputation

Moreover, according to Semmelroth (2022, p. 95) another factor which has an impact on the decision to replace the manager is represented by the reputation of the coach and, in particular, the probability of a manager being dismissed is negatively related to the manager's reputation as a consequence of the fact that a high level of reputation reinforces the trust that the boards of directors of the football clubs have in the coaches.

2.4 The impact of manager dismissals on sports performance

Besters, et al., (2016, p. 335) state that on average the in-season replacements of the managers do not improve the in-season performance of the football teams in the English Premier League and, consequently, "the successfulness of managerial turnover depends on highly specific unpredictable circumstances". Therefore, on average there is not a causal relation between the replacements of the managers and the performances of the football teams because, on average, the performances improve after the replacements of the coaches but these improvements are not causally related to the managerial changes, as asserted by Besters, et al., (2016, pp. 342-344).

Likewise, according to ter Weel (2011, pp. 279-281) the turnover of the managers does not lead to statistically significant improvements in the performances of the football teams of the Eredivisie in the period 1986-2004, but rather these football clubs do even worse than the clubs which allow the managers to stay even if the performance is bad and this is due to the fact the coaches may need some time to implement the right strategies.

Moreover, Koning (2003, pp. 555, 561) also concludes that firing a coach does not improve the performance of the teams of the Dutch premier league and in some cases the new football coaches may perform even worse than their fired predecessors, therefore the decision to dismiss the coach appears to be also the consequence of factors such as the fan and media pressure. Flores, et al., (2012, p. 653) provide further evidence of the fact that the decisions to fire the coaches are mainly due to fan and media pressure rather than to the realistic hope of improving the performances of the teams and, in particular, they analyse the context of football in Argentina where there is more than one dismissal of manager per season and per club. Furthermore, Flores, et al., (2012, pp. 660, 661) point out that the replacement of the managers have slightly negative effects on the performance of the football teams and, specifically, this adverse effect is less evident in home results thanks to the presence of the appeased supporters.

However, the relatively low cost to the football club in terms of sporting goals is the reason behind the choice to dismiss a coach since the directors of the club can decide to fire a manager, even if this decision does not effectively improve the performance, just in order to relieve the pressure on themselves (Flores, et al., 2012, p. 661).

Consistently with the aforementioned results, Bruinshoofd & ter Weel (2003, p. 233) claim that in the Eredivisie “sacking a manager seems to be neither effective nor efficient in terms of improving team performance”. In particular, a dismissal is considered effective when the performance of a team is better after the decision to fire the coach while a dismissal is defined efficient when the effect cannot be achieved at a lower cost (Bruinshoofd & ter Weel, 2003, p. 237). Moreover, on average, when the managers are allowed to stay, even though they are sackable due to the poor performances of their teams, they recover from the performance dip in a shorter amount of time (Bruinshoofd & ter Weel, 2003, pp. 235, 242).

Therefore, Bruinshoofd & ter Weel, (2003, p. 242) assert that “sacking a manager does not lead to performance improvements compared to allowing him to stay”. Indeed, when the dismissals turn out to be successful, the success is not greater than the success achieved in the event that the coach is not fired and, on the other hand, when the dismissals turn out to be unsuccessful, the failure is even greater than that incurred when the coach is allowed to stay (Bruinshoofd & ter Weel, 2003, p. 244).

Furthermore, the expected pay-off of the decisions to fire the managers seems to be lower than that of the decisions to allow the coaches to stay with the football club and this is due to the fact that the dismissals are characterised by a higher probability of failure and by a greater degree of failure (Bruinshoofd & ter Weel, 2003, p. 244).

Consequently, the best choice for the football clubs seems to be not to fire the coaches because when the managers are allowed to stay they turn out to be better in improving the performances of the football teams with respect to their potential successors and, in particular, the results of the study in question confirm the non-existence of the so-called shock effect and, in the same way, they provide further evidence concerning the theory according to which a coach is considered as the scapegoat when the performance of the football team is poor (Bruinshoofd & ter Weel, 2003, p. 245).

The authors De Paola & Scoppa (2012, p. 155) also claim that the replacements of the managers do not have any statistically significant effect on the performances of the football teams in the Italian Serie A. Indeed, since the coaches are typically fired after a series of repeated disappointing results, the subsequent improvement in the performance of the football teams is independent of the decision to dismiss the coach but the enhancement of the performance is due to a phenomenon that is called “regression to the mean” or “Ashenfelter dip” according to which the “results tend naturally to improve after a string of bad outcomes [because] in a stochastic environment, unusually low or unusually high outcomes are statistically followed by outcomes that tend to be closer to the mean”, as stated by De Paola & Scoppa (2012, pp. 153-154). Moreover, the authors also demonstrate that in the Italian Serie A the dismissals of the coaches are more frequent among low-performing teams whereas they are rare among high-performing teams (De Paola & Scoppa, 2012, p. 156).

2.5 The influence of football coaches on the economic performance

2.5.1 Football as a business

Nowadays, professional football is business more than entertainment and the football clubs turn into brands due to the increasing relevance of the football industry (Şener & Karapolatgil, 2015, p. 10). Moreover, football clubs are comparable to business enterprises since they have the same characteristics of the entrepreneurial organizations that are innovation, risk-taking, proactiveness, autonomy and competitive aggressiveness, therefore sport entrepreneurship is fundamental in order to stay competitive in the context of football (Hammerschmidt, et al., 2021, pp. 3-4; Núñez-Pomar, et al., 2020, p. 985).

Rossi, et al., (2013, p. 553) identify four groups of football clubs that are characterised by different combinations of the economic and sports performance:

- *Sport winners-performance losers* are the football clubs that pursue sports success and they almost never achieve the operating balance;
- *Combined sports-performance* includes the football clubs with moderate sports success and with the balance sheet that is in equilibrium;
- *Performance winners* are the football clubs which pursue the economic and financial equilibrium as their primary goal;
- *Survivors* includes the football clubs that pursue the financial equilibrium and have no relegation target.

Therefore, the performance of a football club can be analysed with respect to the sports results but also with respect to the economic and financial results.

Consequently, good sports results pursued by coaches are at the basis of a sustainable economic and financial performance because they can improve the reputation of the football club in the international football scene leading to an increased brand value and to greater revenues (Trequattrini, et al., 2016, p. 3). Therefore, a fundamental concept to take into consideration when analysing a football club is that of the managerial efficiency which is the result of the combination of sporting efficiency, that is the conversion of the club's inputs, such as the football players, into sporting successes, and financial efficiency, which is the conversion of the team's inputs into financial successes and operating profits (Rohde & Breuer, 2018, p. 564).

According to Barros, et al., (2014, p. 60) football clubs have two main objectives that are “on-pitch success and financial stability” and they are both affected by the managerial activity. Indeed, managerial effects are a key determinant of the efficiency of the Italian football clubs because high managerial effects lead to a decrease of the costs of the clubs thanks to managerial knowledge and skills (Barros, et al., 2014, p. 68).

Therefore, the coaches of the football clubs have not only an impact on the sports performances of the teams but they also exert an influence on the financial performances of the clubs (Buzzacchi, et al., 2021, p. 744).

The presence of coaches who are popular and internationally recognised can enhance the image of the football clubs thus leading to an increase in revenues from broadcasting rights and merchandising sales (Maderer & Holtbrügge, 2019, p. 413). Indeed, an increase in staff costs, which include the investments in order to hire the coaches, leads to an increase in the number of social media followers, thus expanding the fan base of the football clubs and this is due to the fact that the online supporters of star coaches usually start following on the social media the clubs these managers have signed for (Parganas, et al., 2017, pp. 206, 209).

Furthermore, the football clubs can also use the social media in order to strengthen the relationships with the supporters by providing tailored contents which enhance fan engagement and loyalty (Parganas, et al., 2017, p. 208).

2.5.2 The relationship between sports performance and business performance

According to Galariotis, et al., (2018, p. 589) there is a “positive relationship between business performance and sports performance [because] more revenues affect sports achievements positively and this in turn impact positively on revenues in a virtuous cycle”.

The sports performances of the football teams have an impact on the proceeds of the clubs because the performances on the football fields have a direct influence on the revenues from merchandising, sponsorships and broadcasting rights (Balduck, et al., 2010, p. 679). Furthermore, the sporting performances in the national leagues and cup competitions can also lead to the qualification for the lucrative European competitions that are the UEFA Champions League, the UEFA Europa League and the UEFA Europa Conference League and, consequently, disappointing sports performances of the football teams have also an indirect effect on the amount of financial revenues of the clubs. (Balduck, et al., 2010, p. 680).

Therefore, the increase in revenues allows the football clubs to spend more, in order to create winning teams, thus improving sports performance and this in turn leads to an increase in revenues thanks to the achievement of better league positions (Galariotis, et al., 2018, p. 606).

2.5.3 The relationship between sports performance and financial performance

There seems to be no relationships the business performance and the financial performance because the high revenues of the football clubs are not used in order to improve the financial performance but they are spent in the transfer market with the aim of creating winning teams and this conclusion is confirmed by the negative relationship between the financial performance and the sports performance (Galariotis, et al., 2018, pp. 606-607).

Indeed, according to Galariotis, et al., (2018, p. 607) the managerial myopia has a significant impact in the football clubs since the managers focus on short term results and they adopt “short-term goal-oriented behaviours” because their wages are linked to the achievement of short term objectives and, as a consequence of this, they “aim for sports performance to the detriment of financial performance”. Furthermore, the myopic objectives of the football managers influence the crucial decisions concerning the expenditures on football players because the coaches are required to create winning teams in order to achieve competitive objectives in the short term (Pantuso & Hvattum, 2021, pp. 583-584).

2.5.4 The valorisation of the assets

The coaches also contribute to the valorisation of the assets of the football clubs by fostering the growth of the players' market value which leads to future capital gains (Buzzacchi, et al., 2021, p. 746). Indeed, the managers can make young players debut, they decide each player's field-time, they discover the best roles for the football players on the pitch and then the coaches can also improve the on-field performance of the players through training methods that enhance tactics and skills (Buzzacchi, et al., 2021, p. 747).

3. CHAPTER THREE – The impact of in-season managerial replacements on sports performance in Italian Serie A

3.1 Analysis of managerial replacements in Italian Serie A

The effect of the in-season replacements of the coaches on the performances of the football teams is analysed in this chapter with reference to the clubs in the Italian Serie A in order to investigate the effectiveness and the efficiency of managerial turnover and in order to verify whether the results are consistent with the findings of the literature. In particular, the analysis takes into account 10 seasons of the Serie A from 2007/08 to 2016/17, therefore a total of 3800 football matches. Furthermore, only the replacements of the managers that take place within the season are considered and this is due to the fact that during the summer break between two seasons the composition of the teams may change as a consequence of the transfers of the football players and, moreover, in each season the clubs that take part in the Serie A are different due to promotions and relegations.

3.1.1 Serie A

Serie A is the first division of soccer in Italy and it is characterised by 20 football teams which change every season because of the relegation of the last three teams in the final ranking to the second division, named Serie B, and of the promotion, from the second division to the first division, of the first two football teams in the final ranking of the second division and of the team which succeeds in the playoff.

The schedule of the competition is established at the beginning of the season and during a season of Serie A each football team plays against each other twice, once in the home stadium and once in the stadium of the opposing team, and in every single match the team which scores more goals wins and gains three points while only one point is assigned to both teams in case of a draw and no point is assigned to the losing team after a defeat (Buccioli, et al., 2019, p. 4). The final ranking is determined on the basis of the points earned by each team in all the football matches of the season. The aim of the top teams is to gain as many points as possible in order to win the Scudetto, which is assigned to the first team in the final ranking, or to obtain the right to participate in the European competitions that are the UEFA Champions League, UEFA Europa League and UEFA Europa Conference League. On the other hand, the aim of the teams at the bottom of the final ranking is to avoid the relegation to Serie B.

Moreover, the players of each football team remain the same during the season and potential changes may occur only when the players' transfer market is open and, in particular, in Italy it takes place approximately from July to the end of August and in the month of January.

However, football players who have not a contract with other football teams can be hired in every moment of the season.

As mentioned above, the effect of managerial turnover on team performance is analysed by using data concerning the football teams of the Italian Serie A from the season 2007/2008 to the season 2016/2017. The choice of these period is due to the desire to take into considerations 5 seasons (from 2007/08 to 2011/12) in which the first four teams of the final ranking qualify for the UEFA Champions League and 5 seasons (from 2012/2013 to 2016/17) in which only the teams in the first three positions of the final ranking qualify for the UEFA Champions League, in order to analyse whether the goal of obtaining the qualification for the lucrative European competition has an impact on the expectations towards the coaches and on the decisions of the directors of the clubs to dismiss the football managers in order to achieve the qualification and the related revenues.

In particular, the data are extracted from the website *Football-Data* (<https://www.football-data.co.uk/>) and the data set is manually constructed by combining each match played by every single club during the 10 seasons under analysis with the coach who was leading the team at that time. Therefore, for each match, data are available concerning the teams, the coaches, the date, the place and the goals scored and conceded, so the official result.

Moreover, for each football match the data set includes the pre-game market average betting odds, the final result and the points actually obtained because these fundamental elements are used in order to calculate cumulative points, average points, expected points, surprise in points and cumulative surprise. In particular, the market average odds are computed by taking into consideration 13 different bookmakers that are *Bet365*, *Blue Square*, *Bet&Win*, *Gamebookers*, *Interwetten*, *Ladbrokes*, *Pinnacle*, *Sporting Odds*, *Sportingbet*, *Stan James*, *Stanleybet*, *VC Bet*, *William Hill*.

3.1.2 Coach replacements in Serie A (2007/08 – 2016/17)

The analysis takes into consideration all the changes of managers that occurred in the Italian Serie A from the season 2007/08 to the season 2016/17 and, in particular, all these in-season managerial replacements are considered to be dismissals because voluntary resignations are very rare and difficult to identify in the football sector. An accurate analysis of the data points out that the decision to fire the football managers is quite frequent among the clubs that take part in the Serie A and it is driven by different reasons ranging from the fear of being relegated to the lower division to the desire to obtain better results in order to qualify for the lucrative European competitions.

Table 1 shows the total number of coach replacements per season and the different football clubs which make the decision to fire their managers at least once.

Moreover, the numbers in round brackets indicate how many times each football club dismisses the manager during the same season. The last row of the table shows the total number of dismissals in the 10 seasons considered which is equal to 135, so in each season of the Serie A championship there are on average 13,5 managerial replacements.

TABLE 1 *Coach replacements*

SEASON	NUMBER OF DISMISSALS	CLUBS
2007/08	15	Cagliari (2), Catania, Empoli (2), Livorno (2), Palermo (2), Parma (2), Reggina (2), Siena, Torino
2008/09	11	Bologna (2), Chievo, Juventus, Lecce, Napoli, Palermo, Reggina (2), Torino (2)
2009/10	17	Atalanta (3), Bologna, Cagliari, Catania, Juventus, Lazio, Livorno (2), Napoli, Palermo, Roma, Siena (2), Udinese (2)
2010/11	12	Bari, Brescia (2), Cagliari, Catania, Genoa, Inter, Palermo (2), Parma, Roma, Sampdoria
2011/12	17	Bologna, Cagliari (2), Cesena (2), Fiorentina (2), Genoa (3), Inter (2), Lecce, Novara (2), Palermo, Parma
2012/13	13	Cagliari, Chievo, Genoa (2), Palermo (4), Pescara (2), Roma, Sampdoria, Siena
2013/14	15	Bologna, Cagliari, Catania (3), Chievo, Genoa, Lazio, Livorno (3), Milan, Sassuolo (2), Sampdoria
2014/15	7	Atalanta, Cagliari (3), Cesena, Chievo, Inter,
2015/16	17	Bologna, Carpi (2), Hellas Verona, Lazio, Milan, Palermo (8), Roma, Sampdoria, Udinese
2016/17	11	Genoa (2), Inter (3), Palermo (4), Pescara, Udinese
TOT	135	

Consequently, it is possible to observe that the maximum number of managerial substitutions in a single season is 17 and it is reached in the seasons 2009/10, 2011/12 and 2015/16. In particular, during the season 2009/10, 12 out of 20 football teams replace their managers and the difference between the total number of dismissals (17) and the number of clubs that substitute their coaches (12) is due to the fact that there are teams which decide to change the coach more than once. On the other hand, during the season 2014/15 only 5 football clubs make the decision to fire the manager and the total number of dismissals is equal to 7.

Sometimes it can also happen that football teams rehire coaches that they have previously sacked during the same season and this may be due to the fact that the boards of directors of clubs realize they make a mistake by firing the coach or to the fact that the results continue to be negative even after the change of the manager but there is no valid alternative available.

The statistics concerning this aspect are show in *Table 2*.

TABLE 2 *Number of different coaches*

<i>SEASON</i>	<i>TOTAL NUMBER OF DIFFERENT COACHES</i>	<i>CLUBS THAT REHIRE PREVIOUSLY SACKED COACHES</i>
<i>2007/08</i>	32	Livorno, Palermo, Empoli
<i>2008/09</i>	30	Reggina
<i>2009/10</i>	36	Udinese
<i>2010/11</i>	30	Brescia, Palermo
<i>2011/12</i>	34	Cagliari, Genoa, Novara
<i>2012/13</i>	31	Palermo (2)
<i>2013/14</i>	32	Catania, Livorno, Sassuolo
<i>2014/15</i>	26	Cagliari
<i>2015/16</i>	33	Carpi, Palermo (3)
<i>2016/17</i>	29	Genoa, Inter

The second column of *Table 2* contains the total number of different coaches who are employed by all football teams during each season whereas the third column reports, always with reference to each single season, the clubs that rehire coaches who have previously been sacked by the same teams. The numbers in round brackets indicate how many times each football club rehires the same managers during each season. In particular, during the season 2009/10, only 1 out of 17 managerial substitutions involves the return of a manger who has previously been fired whereas during the season 2015/16, even in 4 situations the football teams chose to rehire coaches who have been dismissed by the same clubs during the same season.

Moreover, the decision to dismiss the manager may be driven by different reasons which can be understood by analysing the final ranking of the first division of soccer in Italy from the season 2007/08 to the season 2016/17. Indeed, the positions of the football clubs in the ranking may be investigated with the aim of making assumptions about the expectations of the supporters and the constantly evolving objectives of the boards of directors.

Specifically, *Table 3* shows the football teams placed in the most relevant ranking positions and the clubs that dismiss their managers at least once are highlighted in red.

TABLE 3 *Ranking positions*

<i>SEASON</i>	<i>CHAMPION & CHAMPIONS LEAGUE</i>	<i>CHAMPIONS LEAGUE</i>	<i>EUROPA LEAGUE</i>	<i>RELEGATIONS</i>
<i>2007/08</i>	Inter	Roma, Juventus, Fiorentina	Milan, Sampdoria, Udinese, Napoli	Empoli, Parma Livorno
<i>2008/09</i>	Inter	Juventus, Milan, Fiorentina	Genoa, Roma, Lazio	Torino, Reggina, Lecce
<i>2009/10</i>	Inter	Roma, Milan, Sampdoria	Palermo, Napoli, Juventus	Atalanta, Siena, Livorno
<i>2010/11</i>	Milan	Inter, Napoli, Udinese	Lazio, Roma, Palermo	Sampdoria, Brescia, Bari
<i>2011/12</i>	Juventus	Milan, Udinese, Lazio	Napoli, Inter	Lecce, Novara, Cesena
<i>2012/13</i>	Juventus	Napoli, Milan	Fiorentina, Udinese, Lazio	Palermo, Siena*, Pescara
<i>2013/14</i>	Juventus	Roma, Napoli	Fiorentina, Inter, Torino	Catania, Bologna, Livorno
<i>2014/15</i>	Juventus	Roma, Lazio	Fiorentina, Napoli, Sampdoria	Cagliari, Cesena, Parma**
<i>2015/16</i>	Juventus	Napoli, Roma	Inter, Fiorentina, Sassuolo	Carpi, Frosinone, Verona
<i>2016/17</i>	Juventus	Roma, Napoli	Atalanta, Lazio, Milan	Empoli, Palermo, Pescara
<i>* 6 points of penalty</i>				
<i>** 7 points of penalty</i>				

The fundamental result, that *Table 3* points out, is the fact that among the 30 football teams that are relegated to Serie B at the end of the seasons, 27 try to avoid this dramatic situation by dismissing their coaches.

Therefore, the risk of relegation is probably the most important determinant of the decisions to fire football managers because the relegation to the lower division has also significant economic consequences. On the other hand, another relevant factor behind the decisions to dismiss the managers appears to be the risk of not qualifying for the lucrative European competitions.

3.1.3 Timing of coach replacements in Serie A (2007/08 – 2016/17)

A relevant aspect to take into consideration when analysing managerial replacements is the timing of the dismissals of the coaches. Indeed, plausible factors that affect the decisions to replace the managers can be the number of the championship day and the period of the year.

TABLE 4 *Dismissals per month*

<i>SEASON</i>	<i>MONTH</i>											
	<i>JAN</i>	<i>FEB</i>	<i>MAR</i>	<i>APR</i>	<i>MAY</i>	<i>JUN</i>	<i>JUL</i>	<i>AUG</i>	<i>SEPT</i>	<i>OCT</i>	<i>NOV</i>	<i>DEC</i>
<i>2007/08</i>			5	2	1					2	4	1**
<i>2008/09</i>	1		3	1	1			1			2	2
<i>2009/10</i>	3	2		2				1	1	4	2	1, 1**
<i>2010/11</i>	2	3	1	2							2	1, 1**
<i>2011/12</i>	2	1	3	2	1				1	1*, 1	2*	2, 1**
<i>2012/13</i>	1	3	2						1	3	1	2
<i>2013/14</i>	6		1	3					1	1	2*	1**
<i>2014/15</i>			2	1						1	1*	1**, 1
<i>2015/16</i>	4	2	2	3					1	1	2, 2*	
<i>2016/17</i>	1	2		2	1				1	1*	2, 1*	
<i>TOT</i>	<i>20</i>	<i>13</i>	<i>19</i>	<i>18</i>	<i>4</i>	<i>0</i>	<i>0</i>	<i>2</i>	<i>6</i>	<i>15</i>	<i>23</i>	<i>15</i>
<i>* Break for national teams</i>												
<i>** Winter break</i>												

According to the data in *Table 4*, November is the month of the year in which the dismissals of the coaches are more frequent and this is probably also due to the presence of the break for the national teams. The same reasoning is applicable to the month of December which is characterised by the long winter break.

Moreover, during the 10 seasons under analysis, 20 out of 135 dismissals, about 15%, occur in January and this may be the consequence of the fact that usually the first round of the Serie A championship ends in January and the boards of directors of the football clubs make assessments on the first part of the season before intervening on the transfer market. Furthermore, coach replacements are also frequent in March and April because the end of the championship is approaching and the football clubs are afraid of not achieving their goals.

The timing of coach replacements can also be analysed with reference to the number of the championship day. Consequently, the number of dismissals per single championship day can be considered in absolute terms and in percentage terms.

In particular, *Figure 1* shows the trend in the absolute number of dismissals per day during the 10 seasons under analysis whereas *Figure 2* display the percentage of managerial replacements per day computed with reference to the total number of dismissals (135) occurring from the season 2007/08 to the season 2016/17.

FIGURE 1 *Absolute number of managerial replacements per championship day*

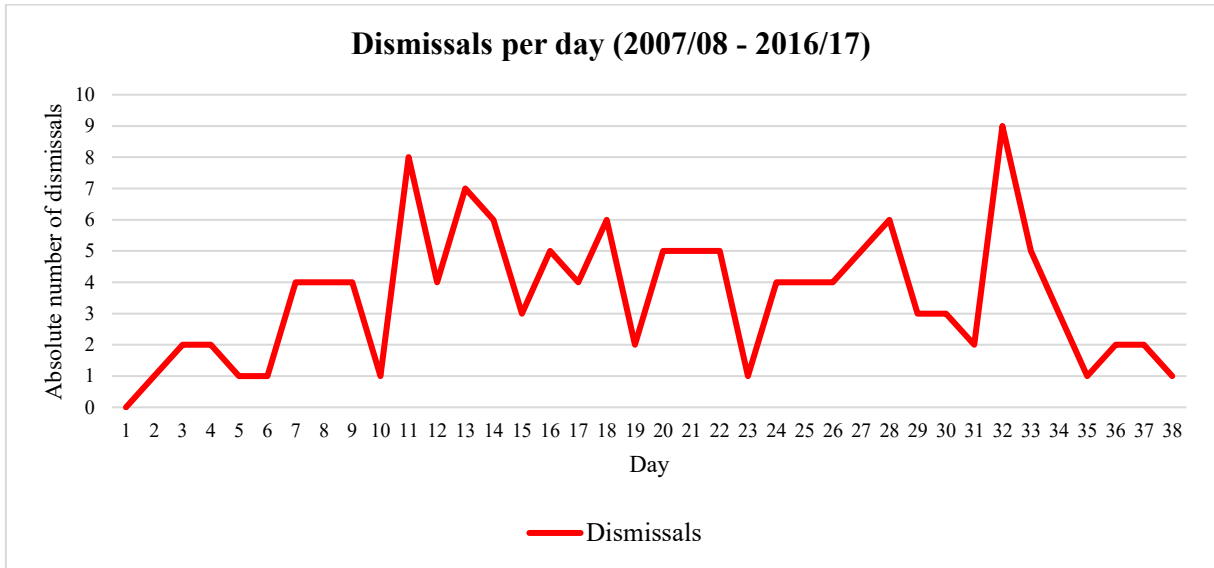
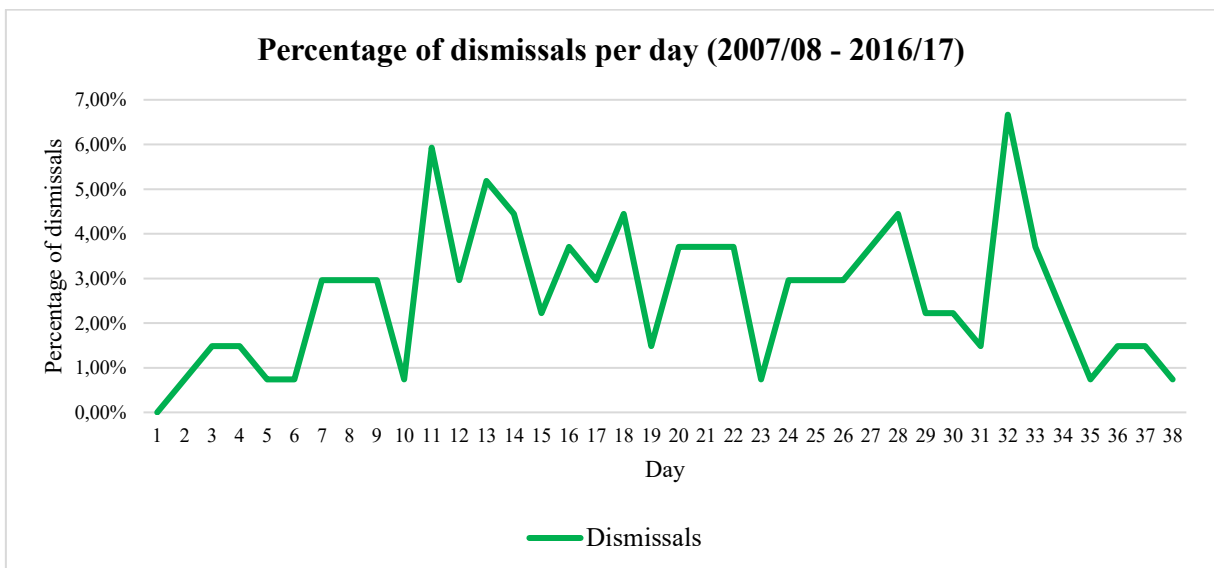


FIGURE 2 *Percentage of managerial replacements per championship day*



Consequently, it is significant to observe that about 13% of managerial replacements occur between day 32 and day 34 and, specifically, more than half of them occur only on day 32. Indeed, 9 coach dismissals out of 135, about 6,67% of the total amount, take place only on day 32 during the 10 seasons considered and the rationale behind this result is probably the fear of

the boards of directors of the football clubs of not achieving the goals set at the beginning of the season and, in particular, the desire to do everything possible in order to avoid relegation.

3.1.4 Survival rates of coaches in Serie A (2007/08 – 2016/17)

A concept which is directly related to managerial replacements is the length of the tenure of the football managers. Consequently, this aspect is analysed by calculating the survival rate of football coaches in the Italian Serie A from season 2007/08 to season 2016/17.

Specifically, the survival rate is computed with reference to each single day of the championship by dividing the 10-season average of the number of coaches who are allowed to remain in office by the number of coaches who are in office at the beginning of a season, which is always equal to 20.

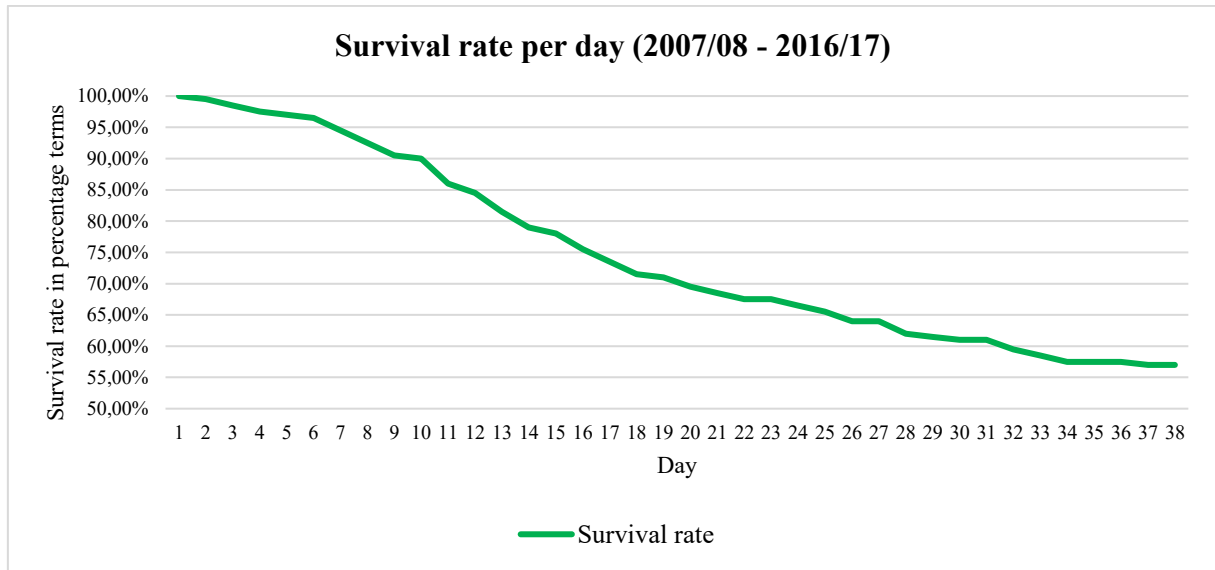
The quantitative results concerning the 10-season average of the number of managers who are allowed to stay on each match day and the corresponding survival rate are shown in *Table 5*.

TABLE 5 *Survival rate of football managers per single championship day (2007/08 – 2016/17)*

DAY	10-SEASON AVERAGE OF COACHES ALLOWED TO STAY	SURVIVAL RATE PER DAY	DAY	10-SEASON AVERAGE OF COACHES ALLOWED TO STAY	SURVIVAL RATE PER DAY
1	20	100,00%	20	13,9	69,50%
2	19,9	99,50%	21	13,7	68,50%
3	19,7	98,50%	22	13,5	67,50%
4	19,5	97,50%	23	13,5	67,50%
5	19,4	97,00%	24	13,3	66,50%
6	19,3	96,50%	25	13,1	65,50%
7	18,9	94,50%	26	12,8	64,00%
8	18,5	92,50%	27	12,8	64,00%
9	18,1	90,50%	28	12,4	62,00%
10	18	90,00%	29	12,3	61,50%
11	17,2	86,00%	30	12,2	61,00%
12	16,9	84,50%	31	12,2	61,00%
13	16,3	81,50%	32	11,9	59,50%
14	15,8	79,00%	33	11,7	58,50%
15	15,6	78,00%	34	11,5	57,50%
16	15,1	75,50%	35	11,5	57,50%
17	14,7	73,50%	36	11,5	57,50%
18	14,3	71,50%	37	11,4	57,00%
19	14,2	71,00%	38	11,4	57,00%

In particular, *Figure 3* shows the survival rate of football coaches per single championship day.

FIGURE 3 *Survival rate of football managers per single championship day*



A significant result is the fact that only 57% of football coaches are not fired during a season in the period considered. It is also relevant to observe a sharp decline in the survival rate in the period between day 10 and day 14 which is probably the consequence of the attempts of the boards of directors to appease the supporters who are unhappy due to the disappointing results at the beginning of the season.

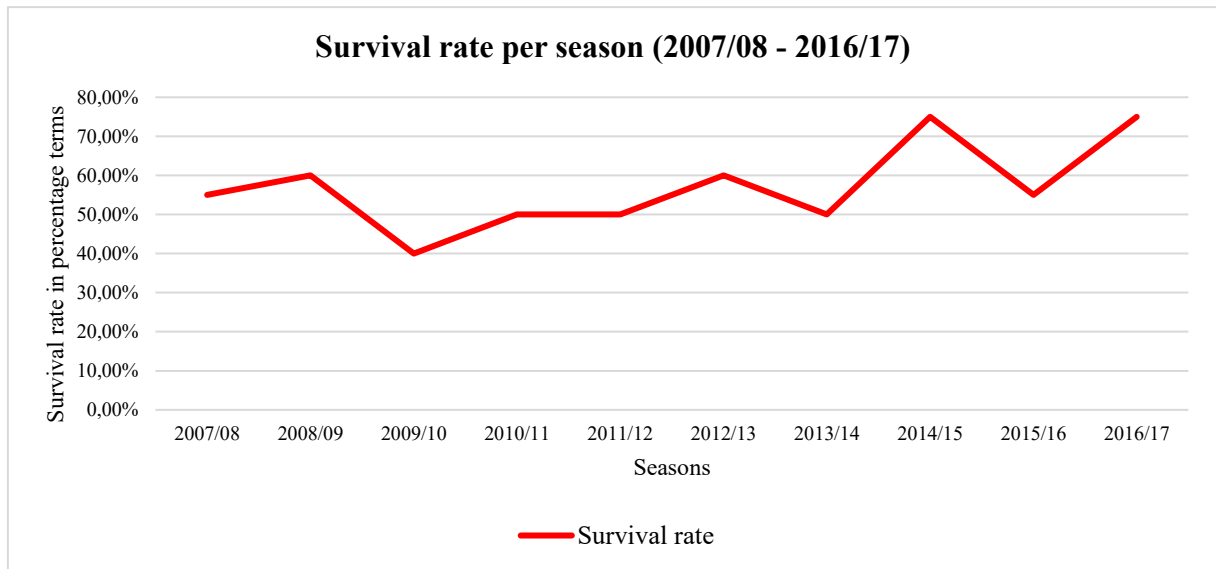
Moreover, the survival rate can also be expressed with reference to each single season of the Serie A championship with the aim of highlighting the trend in the tendency to dismiss football managers. Specifically, the survival rate per season is computed by dividing the number of managers who are allowed to stay at the club until the end of the season by the number of managers who are in office at the beginning of a season (20). The quantitative results concerning the survival rate per season are reported in *Table 6*.

TABLE 6 *Survival rate of football managers per season (2007/08 – 2016/17)*

SEASON	SURVIVAL RATE PER SEASON
2007/08	55,00%
2008/09	60,00%
2009/10	40,00%
2010/11	50,00%
2011/12	50,00%
2012/13	60,00%
2013/14	50,00%
2014/15	75,00%
2015/16	55,00%
2016/17	75,00%

Furthermore, *Figure 4* display the survival rate of coaches per season highlighting a slight increase in the survival rate which is equal to 75% in two of the last three seasons analysed.

FIGURE 4 *Survival rate of football managers per season*



3.2 Analysis of the impact of in-season managerial replacements on sports performance in Italian Serie A (2007/08 – 2016/17)

3.2.1 Average points and cumulative points

The average points and the cumulative points are computed after every match played by each football team from the season 2007/08 to the season 2016/17.

Specifically, the cumulative points are calculated in each season and with reference to each football club by progressively adding together the points obtained in each of the 38 games played. On the other hand, the average points are computed in each of the 10 seasons and for each football club by progressively dividing the points obtained up to a certain championship day by the number of the day in question.

Table 7 reports the average points per single championship day computed distinguishing between the clubs that choose to replace their managers and the clubs whose boards of directors decide to allow the managers to stay. Specifically, with reference to the cases in which there is no managerial substitution, the average points per single championship day are computed as the arithmetic mean of the average points per single championship day of all the 114 football teams that do not resort to in-season managerial replacements in the 10 seasons under analysis.

In the same way, in the event of managerial turnover, the average points per single championship day are computed as the arithmetic mean of the average points per day of all the 86 football clubs that opt for in-season managerial replacements in the period under analysis.

TABLE 7 Average points per single championship day (2007/08 – 2016/17)

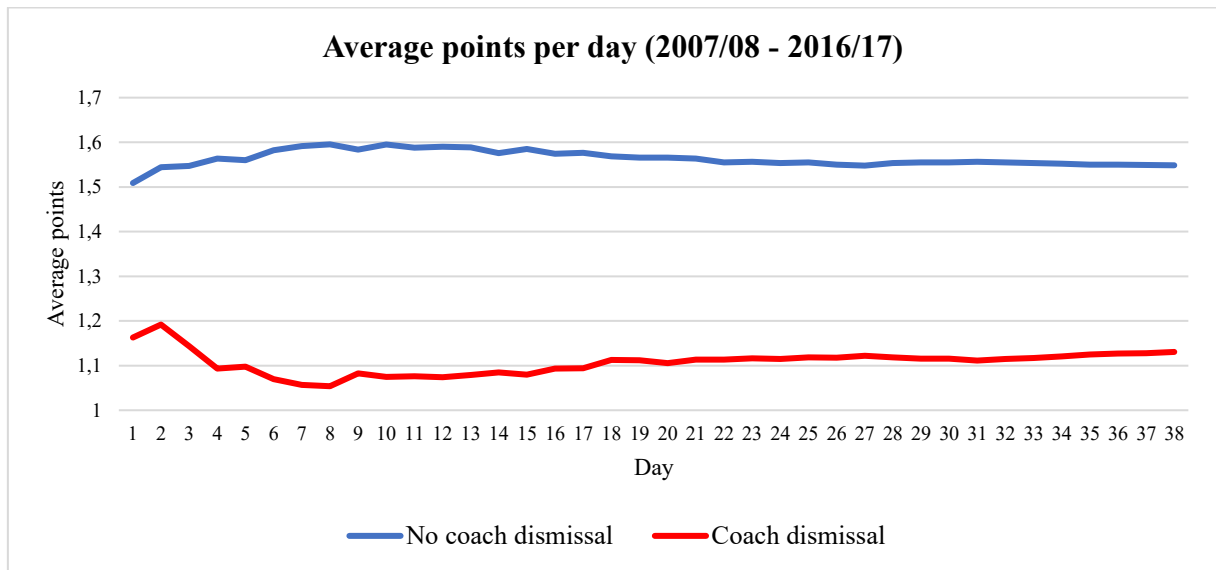
DAY	NO COACH DISMISSAL	COACH DISMISSAL	DAY	NO COACH DISMISSAL	COACH DISMISSAL
1	1,509	1,163	20	1,566	1,106
2	1,544	1,192	21	1,563	1,114
3	1,547	1,143	22	1,555	1,113
4	1,564	1,093	23	1,556	1,116
5	1,560	1,098	24	1,554	1,115
6	1,582	1,070	25	1,555	1,118
7	1,591	1,056	26	1,550	1,118
8	1,595	1,054	27	1,548	1,122
9	1,584	1,083	28	1,554	1,118
10	1,595	1,074	29	1,555	1,115
11	1,588	1,076	30	1,555	1,116
12	1,590	1,074	31	1,556	1,111
13	1,588	1,079	32	1,555	1,115
14	1,576	1,085	33	1,554	1,117
15	1,585	1,080	34	1,552	1,121
16	1,574	1,093	35	1,550	1,125
17	1,576	1,094	36	1,550	1,127
18	1,568	1,112	37	1,549	1,128
19	1,566	1,112	38	1,548	1,131

In particular, the average points per day turn out to be always greater for the football clubs whose managers are allowed to stay than in the case of the clubs that opt for the managerial substitutions and this is probably due to the fact that the decision to replace the manager is more frequent when the results are worse and, consequently, the average of the points obtained per single match is low.

Furthermore, the data are also represented graphically in *Figure 5* in order to facilitate the interpretation of the results. Specifically, *Figure 5* points out that the football clubs that do not dismiss the coach are characterised by a better performance in terms of average points per day compared to the clubs that resort to managerial substitutions.

Indeed, the difference between average points per day in the event of no managerial turnover and the average points per day in case of coach dismissal is substantial and it remains almost the same until the last day of the championship.

FIGURE 5 Average points per single championship day



Moreover, *Table 8* contains the data referring to the cumulative points per single championship day computed distinguishing between the football clubs in which the managers are fired and the clubs whose coaches remain in office until the end of the season.

In particular, in the event that there is no dismissal of the coach, the cumulative points per day are calculated as the arithmetic mean of the cumulative points per single championship day achieved by all the 114 football clubs that decide not to fire the coach in the period under analysis.

Similarly, with regard to the cases in which there is managerial turnover, the cumulative points per day are calculated as the arithmetic mean of the cumulative points per single championship day achieved by the 86 football clubs that resort to in-season managerial replacements in the 10 seasons considered.

Specifically, the cumulative points per single championship day turn out to be always greater for the football teams that decide not to substitute the coach compared to the clubs that opt for the managerial turnover.

This result is probably due to the fact that the decision to dismiss the coach is often due to the risk of relegation which is high when the cumulative points per single championship day are few.

TABLE 8 Cumulative points per single championship day (2007/08 – 2016/17)

DAY	NO COACH DISMISSAL	COACH DISMISSAL
1	1,509	1,163
2	3,088	2,384
3	4,640	3,430
4	6,254	4,372
5	7,798	5,488
6	9,491	6,419
7	11,140	7,395
8	12,763	8,430
9	14,254	9,744
10	15,947	10,744
11	17,465	11,837
12	19,079	12,884
13	20,649	14,023
14	22,061	15,186
15	23,781	16,198
16	25,184	17,488
17	26,798	18,593
18	28,228	20,023
19	29,746	21,128

DAY	NO COACH DISMISSAL	COACH DISMISSAL
20	31,316	22,116
21	32,833	23,384
22	34,211	24,488
23	35,798	25,674
24	37,289	26,756
25	38,868	27,953
26	40,298	29,058
27	41,789	30,302
28	43,500	31,314
29	45,088	32,349
30	46,649	33,465
31	48,237	34,453
32	49,763	35,674
33	51,272	36,860
34	52,781	38,105
35	54,254	39,360
36	55,789	40,570
37	57,316	41,733
38	58,833	42,965

The pattern of the cumulative points per day in the two situations is also represented graphically in *Figure 6*.

FIGURE 6 Cumulative points per single championship day

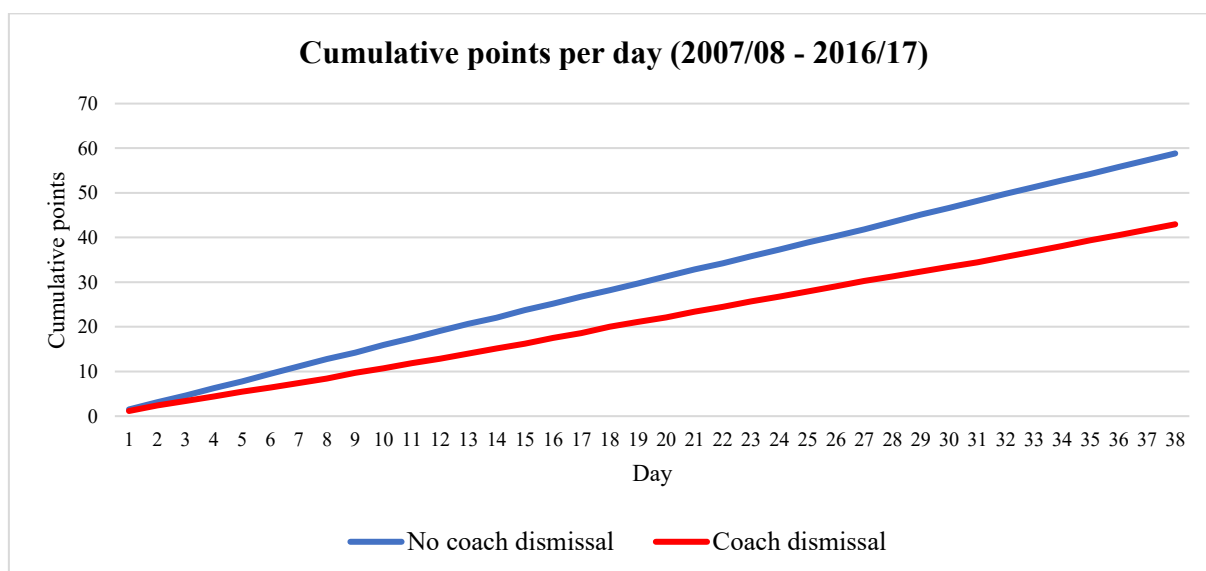


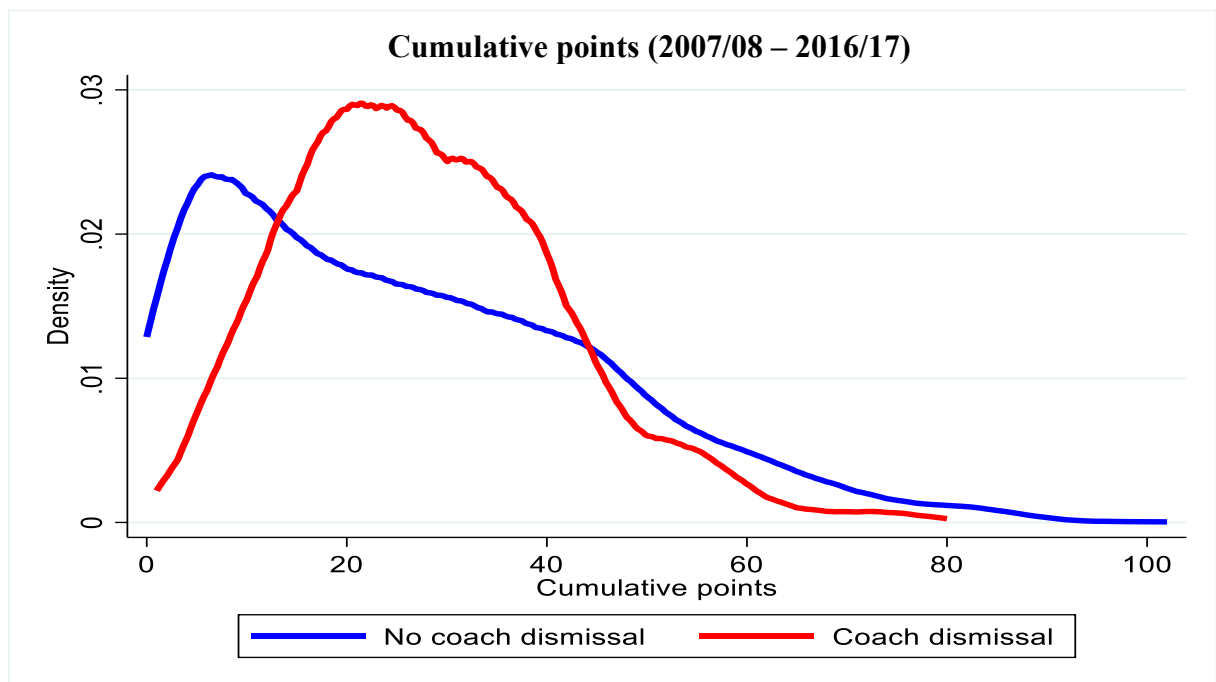
Figure 6 shows that the football teams have more cumulative points per day in case of permanence of the coach with respect to the case in which the manager is fired.

Moreover, it is also useful to examine the probability density function of the cumulative points which is assessed using the kernel density estimation. Consequently, a dummy variable, is created with the aim of distinguishing between the performance of the football teams that dismiss their coaches during the championship and the performance of the clubs whose boards of directors allow the coaches to remain in office until the end of the season.

Specifically, the dummy variable is called *Dismissal* and it takes value 0 for all the football matches of each season in which the teams are led by the coach who is in charge at the beginning of the season whereas it takes value 1 after the first managerial replacement of each football club and up to the last match of the season in which the dismissal occurs.

For example, consider a football team whose directors decide to fire the coach after 13 games. In this case, the first 13 games of the season are associated with a dummy variable which is equal to 0 whereas the following 25 games are associated with a dummy variable which is equal to 1 even if the club decides to dismiss the manager again and even though the football club rehires the same manager previously sacked.

FIGURE 7 Kernel density estimation of the cumulative points



In particular, *Figure 7* points out that, when the managers are allowed to stay, the football teams have a greater chance of obtaining a high number of cumulative points whereas in case of managerial replacement most of the football teams get no more than 40 points.

3.2.2 Cumulative surprise and surprise in points

The concepts of “*Cumulative surprise*” and “*Surprise in points*” are fundamental in order to analyse the impact of the managerial substitutions on the sports performance of the football teams.

According to Besters, et al., (2016, p. 337) “The cumulative surprise is the sum of the differences between the actual number of points and the expected number of points, as based on bookmaker odds”, so it is “an indicator of the difference between performance and expectations”. Moreover, the aforementioned difference between the actual number of points and the expected number of point is the so-called “*Surprise in points*”. Therefore, in order to compute the cumulative surprise for each football team at the end of each season, it is necessary to calculate the surprise in points for every single match played by each football team during all the 10 seasons under analysis.

Specifically, the computation of the surprise in points is based on the bookmakers’ betting odds which reflect the expectations concerning the final result of each football match. Indeed, the betting odds of professional bookmakers provide an accurate approximation of the performance expectations of the board of directors because the betting odds take into consideration all the performance-level information available in order to predict the results of future football matches (Pieper, et al., 2014, p. 7). Moreover, the betting odds are proxies of the outcome of the football matches and they are used as a measure of unbiased expectation of the result of every football game (Dimic, et al., 2018, p. 91).

According to Dimic, et al., (2018, p. 92) the betting odds show the amount of money that each gambler “could win on winning bets per unit of a bet” and they are “formed by specialists”. In particular, for each possible outcome of the football matches, the betting odds are the payout ratios for a winning bet and they are constructed in such a way that higher odds correspond to smaller probabilities of the outcomes to occur. (Pieper, et al., 2014, p. 13).

Furthermore, Pieper, et al., (2014, p. 13) claim that “the sum of the probability odds exceeds one by the bookmaker’s margin”, therefore, the implicit probabilities, which sum to one, are obtained by adjusting the probability odds by the margin of the bookmaker.

For example, let’s consider a generic football team between Team 1 and Team 2 and assume that the pre-game betting odds for winning Team 1, winning Team 2 and the match ending in a draw are 1.31, 4.60 and 9.57 respectively.

In this case, the corresponding probability odds are 76.34%, 21.74% and 10.45% and they sum up to 108.53%, so the bookmaker's margin is 8.53%.

The implicit probabilities are then obtained by dividing the probability odds by their sum, in order to adjust them by the bookmaker's margin, and they are respectively:

- $76.34\% / 108.53\% = 70.34\%$, which is the probability that Team 1 wins and Team 2 loses;
- $21.74\% / 108.53\% = 20.03\%$, which is the probability that Team 1 loses and Team 2 wins;
- $10.45\% / 108.53\% = 9.63\%$, which is the probability that the match ends in a draw.

These adjusted probability odds sum up to 100%.

In order to compute the surprise in points is then necessary to calculate the expected points which are obtained by multiplying the corresponding adjusted probability odds by the points that are assigned to the football teams in the event of a win, draw or defeat, which are 3, 1 and 0 respectively, and adding the three products together.

Going back to the previous example, the expected points are 2.31 as it results from the calculation $70.34\% \times 3 + 20.03\% \times 1 + 9.63\% \times 0 = 2.31$

Therefore, the difference between the points actually obtained by a football team in each match and the expected points with reference to the same match is the surprise in points.

In the generic example it is possible to distinguish three cases:

- if Team 1 wins the match, the surprise in points is equal to $0.69 = 3 - 2.31$
- if the match ends in a draw, the surprise in points is equal to $-1.31 = 1 - 2.31$
- if Team 1 loses the match, the surprise in points is equal to $-2.31 = 0 - 2.31$

In order to analyse the impact of in-season managerial replacements on sports performance in the Italian Serie A from the season 2007/08 to the season 2016/17, the surprise in points is computed for every match played by each single football team during the 10 seasons under analysis.

In particular, *Table 9* shows the average surprise in points per single championship day, calculated by taking into consideration all the football teams and distinguishing between the clubs that dismiss their coaches and the clubs that allow their coaches to stay until the end of the season. In particular, the clubs whose boards of directors make the decision to replace the coaches are 114 whereas the clubs whose directors decide not to substitute the coaches are 86.

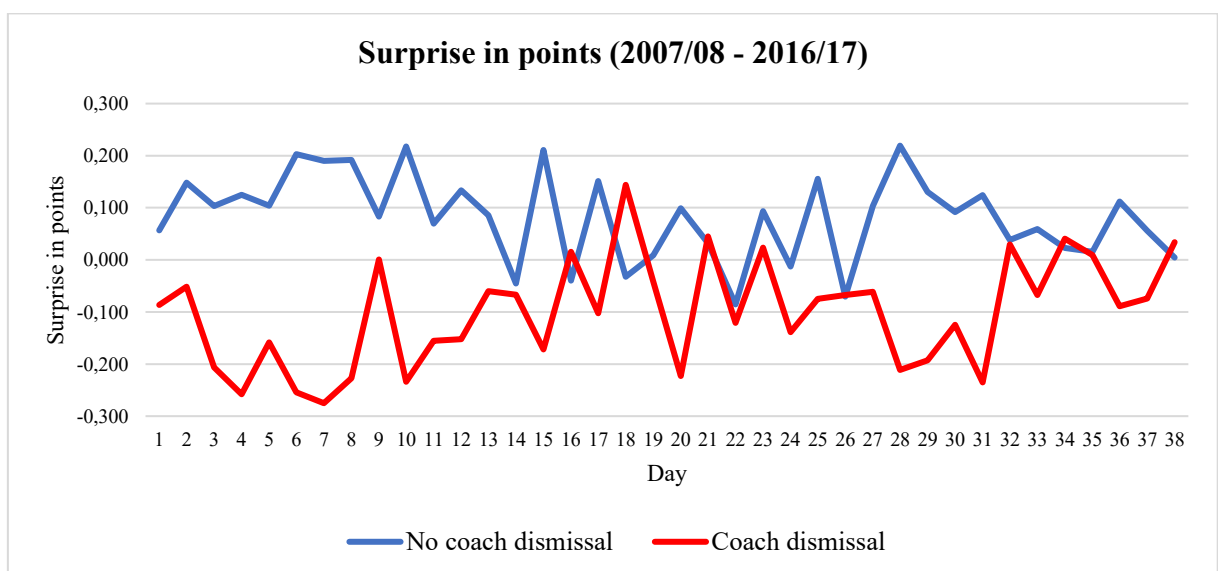
TABLE 9 *Surprise in points per single championship day (2007/08 – 2016/17)*

DAY	NO COACH DISMISSAL	COACH DISMISSAL
1	0,057	-0,087
2	0,148	-0,051
3	0,104	-0,207
4	0,125	-0,258
5	0,104	-0,158
6	0,203	-0,254
7	0,190	-0,275
8	0,192	-0,227
9	0,083	0,000
10	0,218	-0,234
11	0,070	-0,155
12	0,134	-0,152
13	0,086	-0,060
14	-0,045	-0,067
15	0,211	-0,172
16	-0,040	0,016
17	0,151	-0,102
18	-0,032	0,144
19	0,008	-0,041

DAY	NO COACH DISMISSAL	COACH DISMISSAL
20	0,099	-0,223
21	0,032	0,045
22	-0,086	-0,121
23	0,093	0,023
24	-0,013	-0,139
25	0,156	-0,075
26	-0,071	-0,068
27	0,103	-0,061
28	0,219	-0,211
29	0,130	-0,193
30	0,092	-0,124
31	0,124	-0,235
32	0,038	0,029
33	0,059	-0,067
34	0,023	0,041
35	0,015	0,009
36	0,112	-0,089
37	0,056	-0,075
38	0,005	0,034

Moreover, in order to facilitate the interpretation of the statistics, the data are also represented graphically in *Figure 8*.

FIGURE 8 *Surprise in points per single championship day*



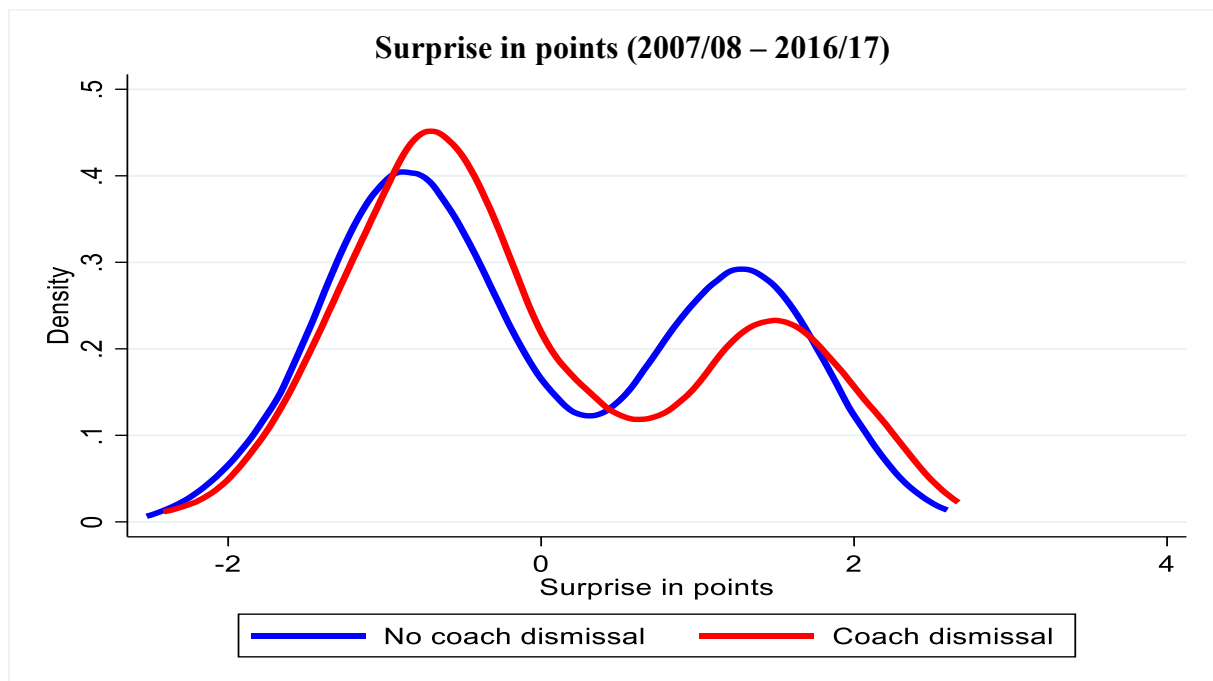
In particular, *Figure 8* points out that, during the 10 seasons under analysis, the results of the football teams that decide to keep their coaches in charge until the end of the season lead on

average to a positive surprise in points in almost all the championship days. On the other hand, the match results of the clubs that decide to dismiss their managers lead on average to a negative surprise in points in the majority of the championship days.

Therefore, the surprise in points on average is greater in the case of football clubs that do not fire their managers than in the case of the clubs that opt for the managerial replacements, with the sole exception of the championship days 16, 18, 21, 34 and 38. In particular, these five championship days are characterised by a surprise in points which is greater for the clubs whose boards of directors make the decision to substitute the coaches than for the clubs that allow their coaches to stay and this result is probably due to the numerous dismissals that occur in the central part and in the final part of the seasons and that have only an immediate impact on the sports performance of the football teams.

Moreover, the kernel density estimation of the surprise in points allows to compare the two opposite decisions by taking into consideration the probability density function. As in the case of the cumulative points, the dummy variable *Dismissal* is used in order to compare the performance of the football teams that make different decisions concerning the replacement of the manager. The comparison is represented graphically in *Figure 9*.

FIGURE 9 Kernel density estimation of the surprise in points



In particular, the kernel density estimation of the surprise in points highlights that the football teams are more likely to perform below expectations when the coach is replaced whereas they are more likely to perform above expectations when the football manager is allowed to stay.

For each season under analysis, it is then possible to compute the cumulative surprise for each football team by adding together the surprises in points related to the 38 matches played by each club. Moreover, for every season, it is useful to compute the average cumulative surprise for the clubs that decide to keep their coaches in office until the end of the championship and the average cumulative surprise for the clubs that opt to replace their managers.

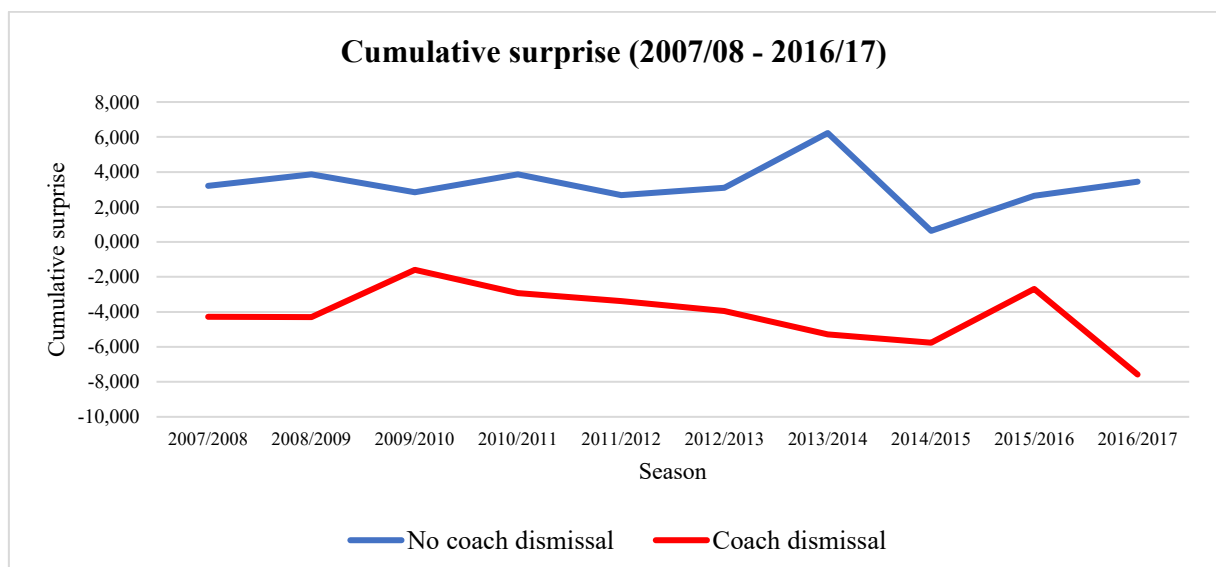
The quantitative results are reported in *Table 10*.

TABLE 10 *Cumulative surprise per season (2007/08 – 2016/17)*

SEASON	NO COACH DISMISSAL	COACH DISMISSAL
2007/2008	3,210	-4,274
2008/2009	3,866	-4,304
2009/2010	2,838	-1,594
2010/2011	3,869	-2,917
2011/2012	2,672	-3,387
2012/2013	3,092	-3,953
2013/2014	6,227	-5,280
2014/2015	0,634	-5,767
2015/2016	2,641	-2,684
2016/2017	3,446	-7,580

Table 10 highlights that the average cumulative surprise is negative in all seasons when the managers are fired whereas it is always positive when the coaches are allowed to stay. Furthermore, the average cumulative surprise, for each of the 10 seasons, is also represented graphically with the aim of making a comparison between the two different possible decisions of the boards of directors of the football clubs.

FIGURE 10 *Cumulative surprise per season*



In particular, *Figure 10* shows that during the 10 seasons under analysis the cumulative surprise is always greater in the event of no dismissal of the manager than in the event of managerial replacement.

3.3 Linear regression model

A fundamental step in order to understand the determinants of the surprise in points is the construction of a linear regression model with robust standard errors.

Therefore, it is necessary to identify a dependent variable, in this case *Surprise_in_points*, and one or more explanatory variables which are represented by *Dismissal*, *Team_number* and *Season*. In particular, the dummy independent variable *Dismissal* is defined as previously mentioned, so in each season it takes value 0 in case of no managerial turnover whereas it takes value 1 after the first managerial replacement of each team and until the last match played by the same team in the season under analysis. Moreover, the explanatory variable *Season* refers to each single season and it is written in such a way as to indicate the year in which the season ends, so, for example, *2009* refers to the season 2008/09. Furthermore, the variable *Team_number* refers to all football teams and each of them is identified with a progressive number following the alphabetical order, as shown in *Table 11*.

TABLE 11 Variable *Team_number* (Football teams sorted in alphabetical order and combined with a progressive number)

TEAM	NUMBER	TEAM	NUMBER	TEAM	NUMBER
Atalanta	1	Fiorentina	12	Novara	23
Bari	2	Frosinone	13	Palermo	24
Bologna	3	Genoa	14	Parma	25
Brescia	4	Hellas Verona	15	Pescara	26
Cagliari	5	Inter	16	Reggina	27
Carpi	6	Juve	17	Roma	28
Catania	7	Lazio	18	Sampdoria	29
Cesena	8	Lecce	19	Sassuolo	30
Chievo	9	Livorno	20	Siena	31
Crotone	10	Milan	21	Torino	32
Empoli	11	Napoli	22	Udinese	33

The linear regression model is identified by the following relationship:

$$Surprise_in_points = \beta_0 + \beta_1Dismissal + \beta_2Team_number + \beta_3Season$$

The quantitative results of the regression are presented in *Table 12*.

3.4 Case studies

Real case studies are used in order to analyse the impact of in-season managerial substitutions on the sports performance whose considered proxies are the surprise in points and the cumulative points obtained by the football teams in the Italian Serie A.

In particular, the case studies are based on the comparison between the sports performance of the football clubs that dismiss their coaches due to bad results and the sports performance of the clubs whose coaches are allowed to stay even though the sports results achieved are almost equal up to the moment in which the dismissal takes place in the alternative season under comparison.

Specifically, 44 case studies are analysed and in 32 out of 44, about 73% of the cases, the decision not to fire the coaches proves to be more effective than the choice of opting for the managerial replacement because the cumulative points of the football clubs in the season in which the managers are allowed to remain, even in the presence of bad results, turn out to be greater at the end of the championship with respect to the cumulative points obtained by the same football club at the end of the season in which the managers are fired.

In this thesis only the most significant case studies are reported.

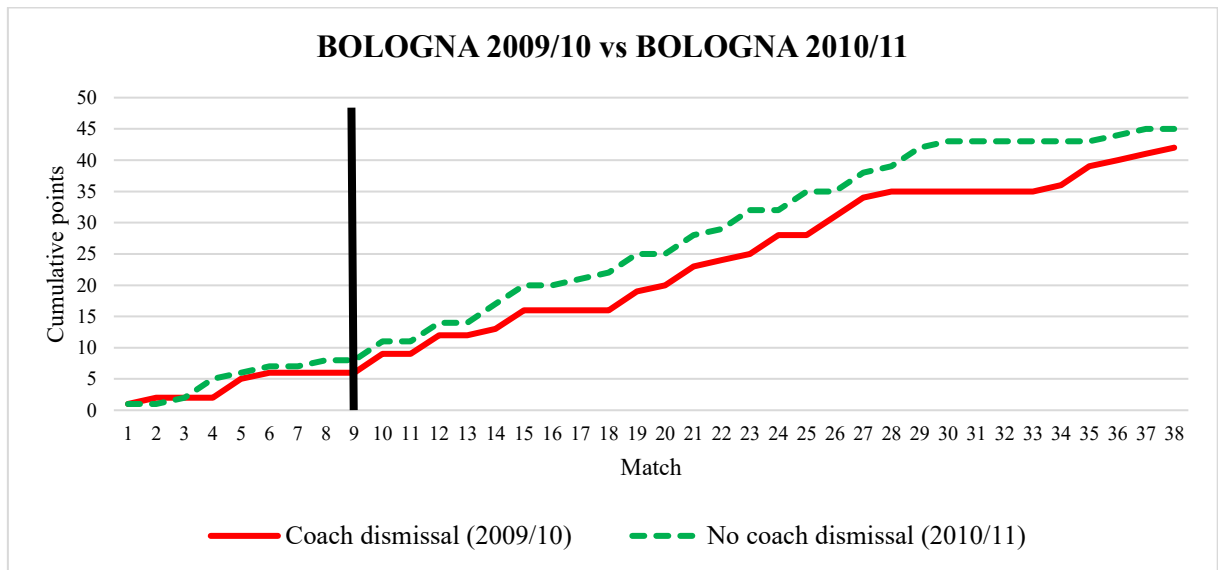
3.4.1 Bologna F.C. 2009/10 vs. Bologna F.C. 2010/11

In the season 2009/10 Bologna Football Club had collected only 6 points after 8 matches, so the manager was sacked with the hope of improving the performance. Similarly, in the season 2010/11 Bologna Football Club had collected 8 points after 8 matches but, in this case, the coach remained in charge until the end of the season.

Cumulative points are a useful concept in order to evaluate the effect of the decision to dismiss the football manager on the sports performance of the football team.

Consequently, the comparison between the cumulative points obtained by Bologna Football Club in the two seasons is shown in *Figure 11*.

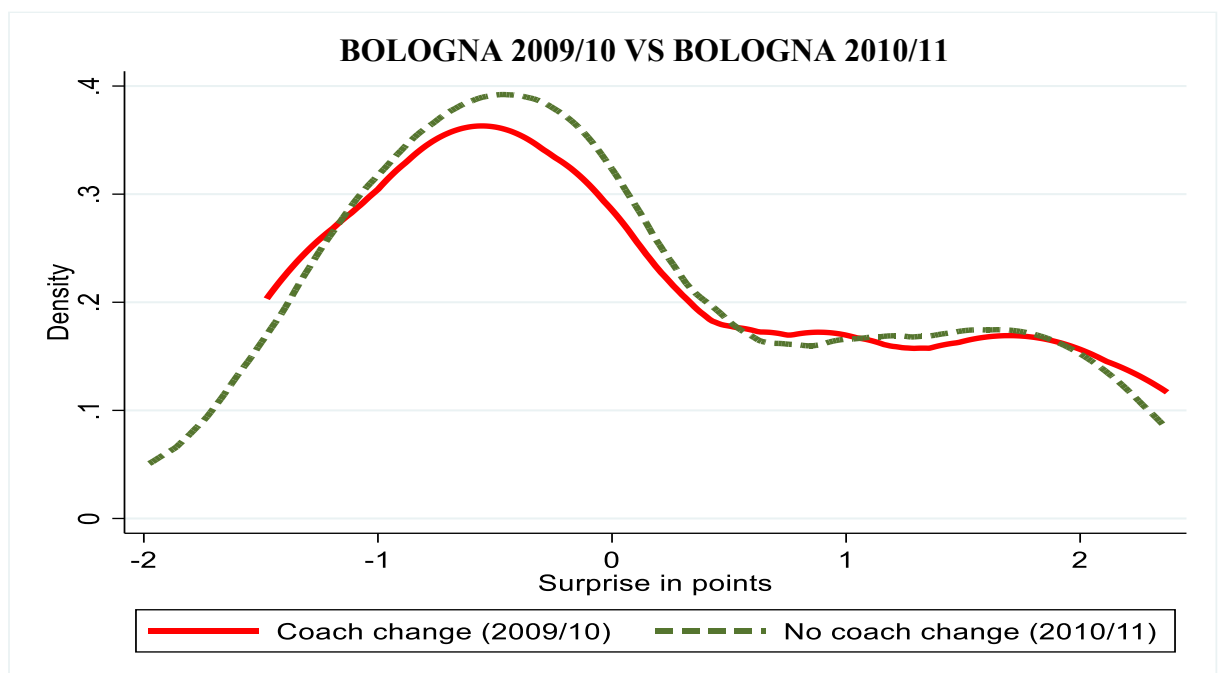
FIGURE 11 Cumulative points per day (Bologna Football Club)



The black bar represents the day of the actual dismissal in the season 2009/10 and the day of the potential dismissal in the season 2010/11. As it can be seen, at the end of the championship the cumulative points are higher in the season in which the coach is allowed to stay. Therefore, the decision to replace the manager appears to be ineffective and mostly due to the desire to identify a scapegoat in order to appease the disappointed supporters.

Moreover, the case study also includes the kernel density estimation of the probability density function of the surprise in points in the two different situations considered and the results are represented graphically in *Figure 12*.

FIGURE 12 Kernel density estimation of the surprise in points (Bologna Football Club)



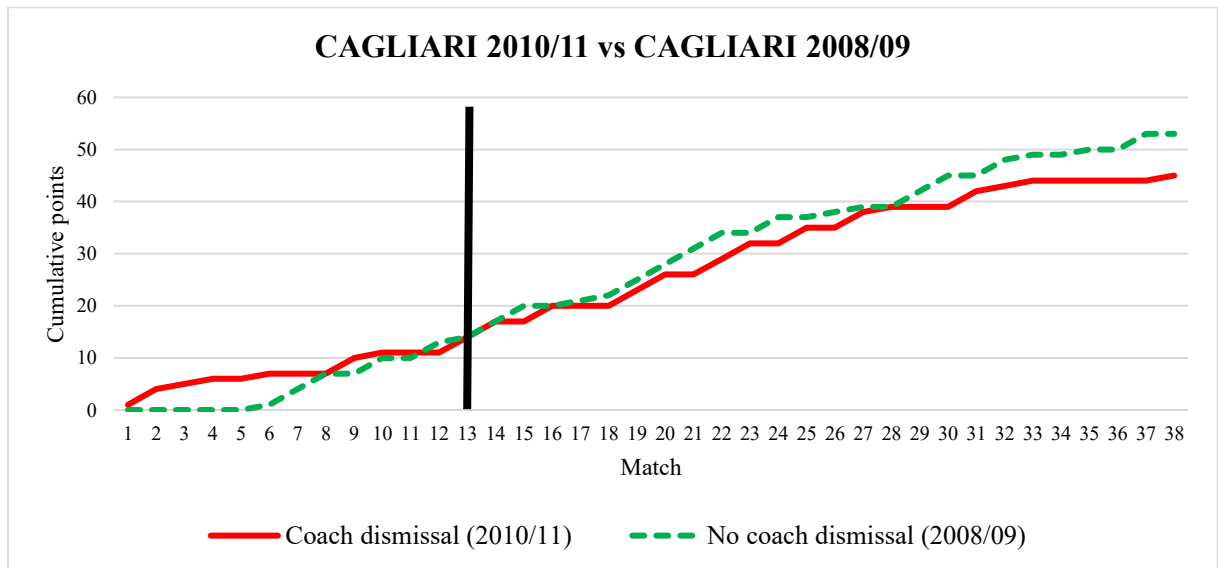
In particular, *Figure 12* points out that the results in terms of surprise in points are approximately the same in both cases, therefore the decision to fire the manager does not seem to be convenient.

3.4.2 Cagliari Calcio 2010/11 vs Cagliari Calcio 2008/09

In the season 2010/11 Cagliari Calcio had collected only 11 points after 12 matches and the coach was replaced in order to try to get better results. On the other hand, in the season 2008/09 Cagliari Calcio had collected 13 points after 12 matches but the coach was allowed to remain in office until the end of the season.

Figure 13 shows the comparison between the cumulative points per single championship day in the two seasons under analysis.

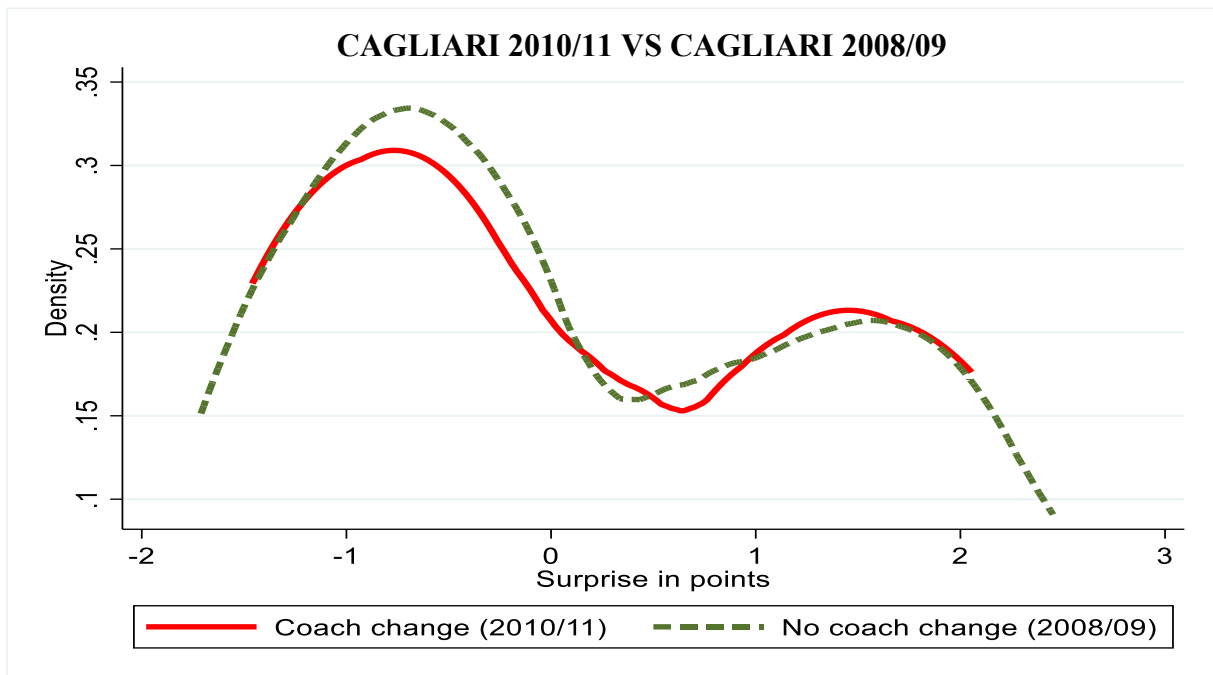
FIGURE 13 *Cumulative points per day (Cagliari Calcio)*



As it can be seen, the cumulative points after 38 matches turn out to be more in the season in which the coach is not fired than in the season in which the managerial replacement occurs and this result points out the effectiveness of the decision to confirm the manager until the end of the season.

Moreover, *Figure 14* shows the probability density function of the surprise in points in the two different situations.

FIGURE 14 Kernel density estimation of the surprise in points (Cagliari Calcio)



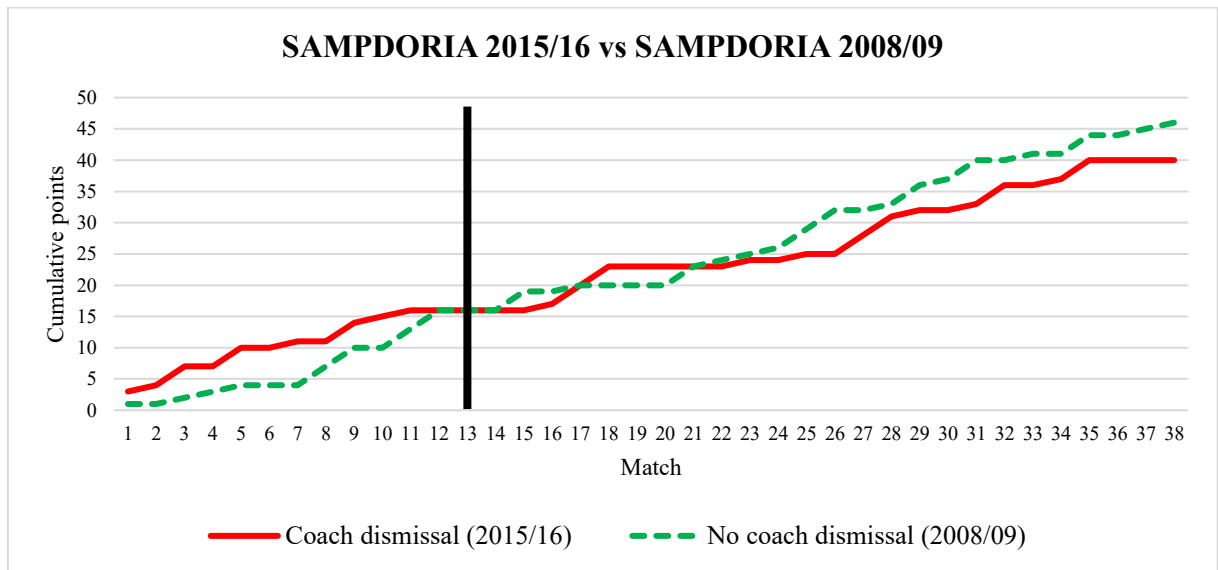
Specifically, the analysis of *Figure 14* makes it possible to conclude that the decision to dismiss the manager does not generate actual benefits in terms of surprise in points.

3.4.3 U.C. Sampdoria 2015/16 vs. U.C. Sampdoria 2008/09

In the season 2015/16 the football club Unione Calcio Sampdoria had collected 16 points after 12 matches and the coach was fired. In the same way, in the season 2008/09 Unione Calcio Sampdoria had collected 16 points after 12 matches but, at the time of the potential dismissal, the manager was allowed to stay even though the average points were 1,33 per game as in the case of the actual managerial replacement.

The comparison between the cumulative points per single championship day obtained by Sampdoria in the two seasons is shown in *Figure 15*.

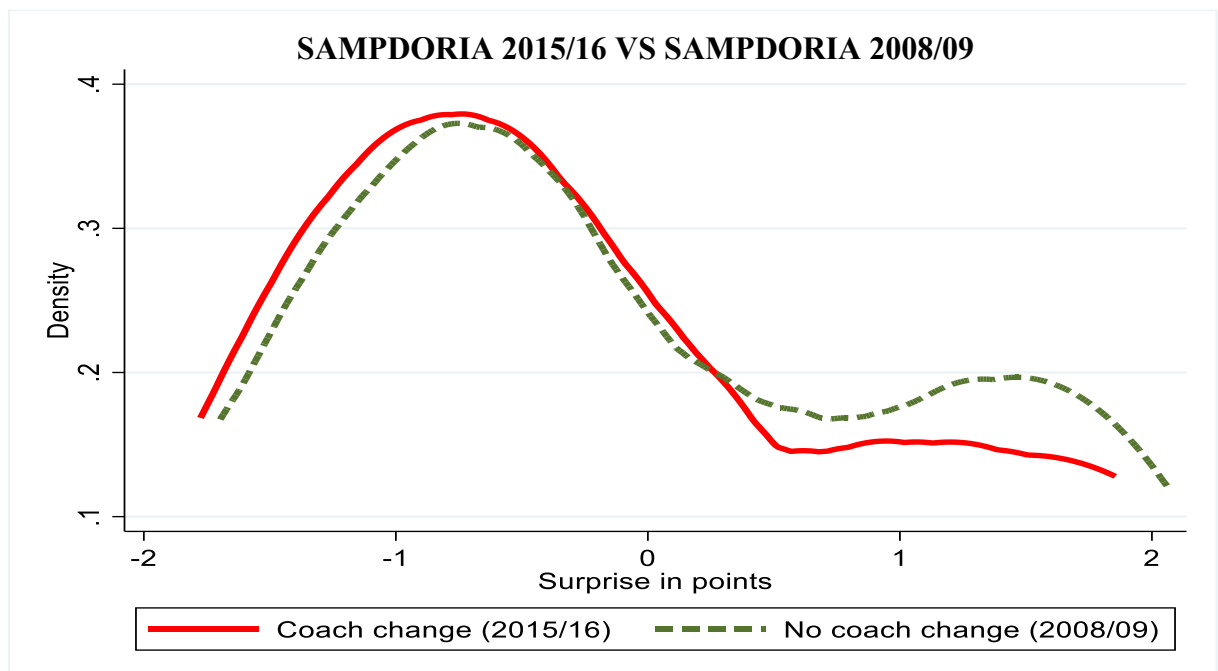
FIGURE 15 Cumulative points per day (Unione Calcio Sampdoria)



Also in this case, at the end of the Serie A championship the football club achieves a higher number of cumulative points in the season in which the coach remains in office.

Moreover, the comparison between the kernel density estimation of the surprise in points in the two seasons is then displayed in *Figure 16*.

FIGURE 16 Kernel density estimation of the surprise in points (Unione Calcio Sampdoria)



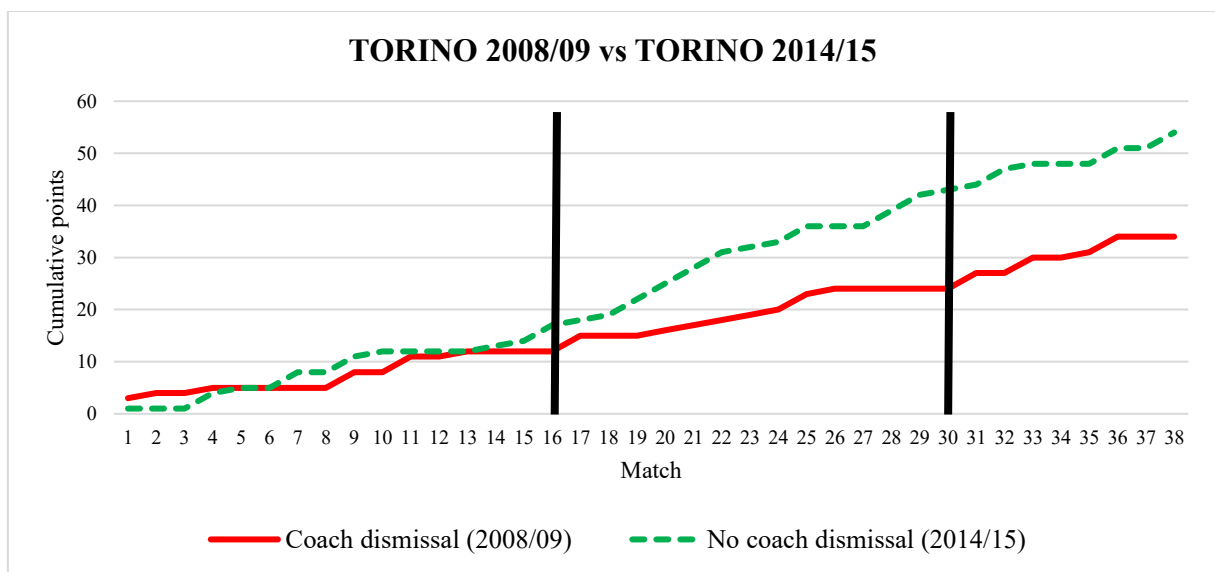
In particular, *Figure 16* shows that a negative surprise in points is more frequent in case of the managerial replacement whereas a positive surprise in points is more likely to occur when the manager is allowed to stay.

3.4.4 Torino F.C. 2008/09 vs Torino F.C. 2014/15

In the season 2008/09 Torino Football Club had collected 12 points after 15 matches and the manager was sacked. Similarly, in the season 2014/15 Torino Football Club had collected only 14 points after 15 matches but in this case the directors of the club decide not to fire the manager until the end of the season. Moreover, in the season 2008/09, after the 29th matchday, Torino Football Club opted for another managerial replacement because the manager previously appointed had collected only 24 points after 29 matches.

In *Figure 17* the two decisions are compared in terms of cumulative points per day.

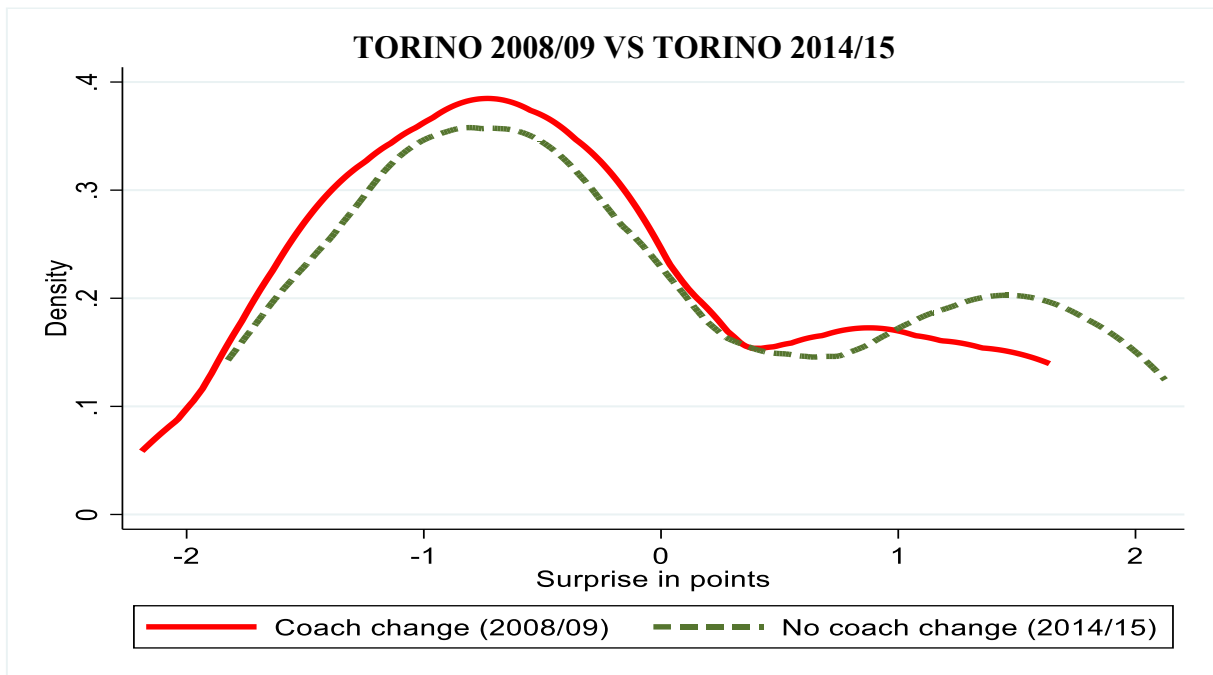
FIGURE 17 *Cumulative points per day (Torino Football Club)*



In particular, after 15 matches the difference between the cumulative points per day obtained by Torino F.C. in the 2014/15 and the cumulative points per day obtained by Torino F.C. in the 2008/09 season is only equal to 2 points. However, after the first managerial substitution the difference starts to increase sharply. Moreover, after the second managerial substitution, the difference between the cumulative points per day in case of managerial turnover and the cumulative points per day in case of permanence of the coach becomes even greater. Indeed, the difference between the cumulative points obtained after 38 matches in the two seasons turns out to be equal to 20 points. Consequently, according to this result, the decision to replace the manager seems to be counterproductive.

The same conclusion is evident from the analysis of the probability density function of the surprise in points in the two different situations, as it can be seen in *Figure 18*.

FIGURE 18 Kernel density estimation of the surprise in points (Torino Football Club)



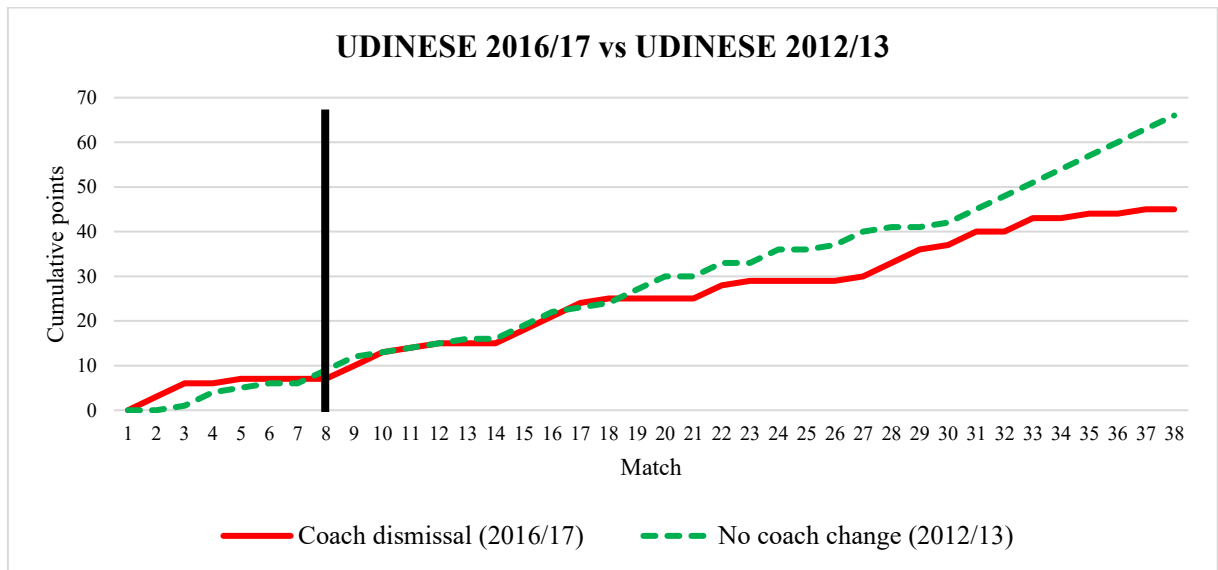
Indeed, *Figure 18* points out that a positive surprise in points is more frequent when the manager is allowed to stay whereas a negative surprise in points occurs more frequently in case of managerial replacement.

3.4.5 Udinese Calcio 2016/17 vs. Udinese Calcio 2012/13

In the season 2016/17 Udinese had collected only 7 points after 7 matches, so the directors of the club made the decision to dismiss the manager in order to try to improve the performance. Similarly, in the season 2012/13 Udinese had collected 6 points after 7 matches however, in this case, the board of directors allowed the coach to remain in office until the end of the Serie A championship.

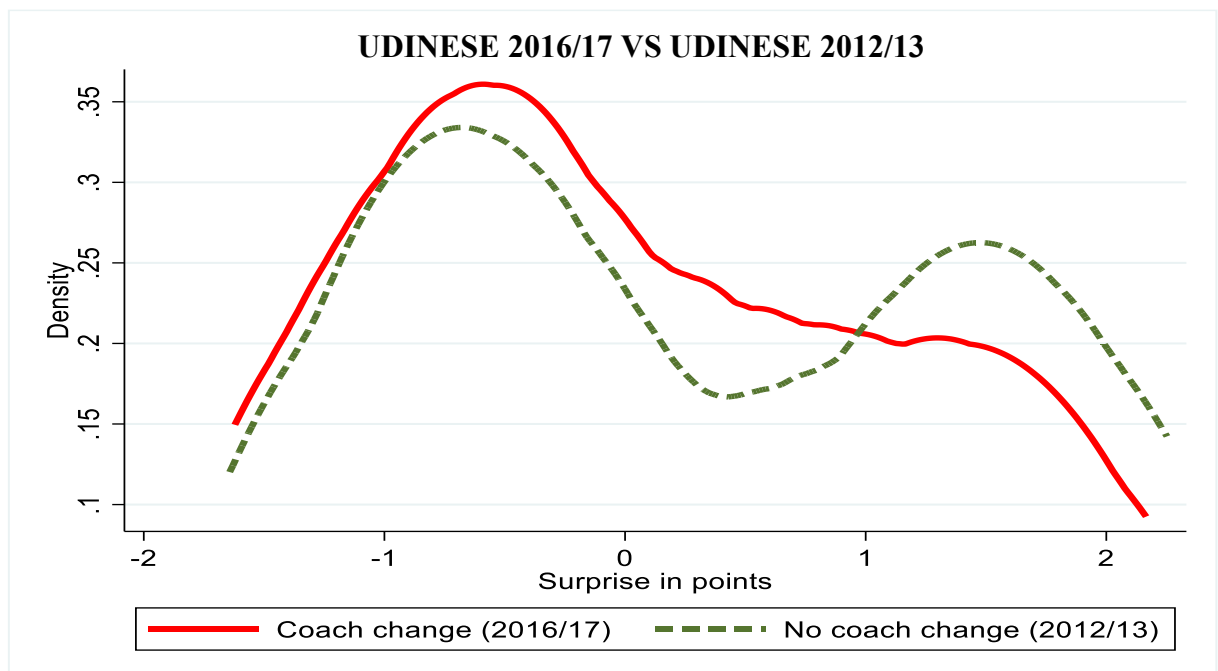
In order to evaluate the effectiveness of the decision to replace the coach, the cumulative points obtained by the football club in each of the two seasons are compared and the representation of the result is shown in *Figure 19* which points out that the sports results of Udinese are better in the season in which the manager is allowed to stay.

FIGURE 19 Cumulative points per day (*Udinese Calcio*)



In particular, the cumulative points are practically the same until the championship day 18 and then the difference between them seems to increase during the last championship days. Furthermore, *Figure 20* displays the kernel density estimation of the surprise in points deriving from the sports results of the club in the two cases.

FIGURE 20 Kernel density estimation of the surprise in points (*Udinese Calcio*)



Therefore, the football team seems to perform more frequently below expectations in the event of managerial substitution whereas it seems to perform more frequently above expectations in the season in which the coach is allowed to stay.

CONCLUSIONS

The conclusive result of the present thesis is in line with the theories stated in the literature with reference to the consequences of the managerial replacements. Indeed, the decision to dismiss the managers turns out to be ineffective and unproductive because the sports performance in the event of managerial replacement is on average worse with respect to the case in which the coaches are allowed to stay. Additionally, the members of the boards of directors of the football clubs are likely to be aware of these results at the time they make the decision to substitute the manager. Therefore, the reasons behind the decision to replace the coach are not directly related to the concrete expectation of an improvement in the sports results. In particular, the main motivation behind the dismissal of the coaches appears to be the desire to find a scapegoat to blame for the bad sports results in order to please the disappointed fans. Moreover, as shows in the case studies, another fundamental reason behind the decision to substitute the managers is the so-called shock effect. According to this concept, for a short period of time after the managerial replacement occurs, the sports performance seems to improve slightly as a direct consequence of the arrival of the new coach with an innovative working method and different motivational and interpersonal skills. Finally, a further reason behind the dismissal of the manager is the fear of the relegation to the lower division which leads the boards of directors of the football clubs to make even apparently irrational decisions in order to try everything to avoid the disastrous consequences of relegation.

Therefore, the best choice seems to be the decision to allow the managers to remain in office until the end of the season, thus giving them the right time to get to know the players and to implement their own style of play.

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