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ISSN: 1286-4692

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■ Christian LECHNER 2012
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M@n@gement, 15(3), 283-312.

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Superior value creation in sports teams: Resources and managerial experience

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Abstract

Resource-based research sustains that organisations (and thus teams) create value through internally developed and complementary acquired resources, through the management of resources and the development of routines. In this study, we advance the understanding of the impact of resources and capabilities by investigating the role of moderators on the key factors of team performance and address the question of when the whole is more than the sum of its parts. We develop and test hypotheses as to how managerial experience helps to foster the development of internal resources and group routines, to extract more value from bought resources, how internally developed resources reinforce group routines and how financial resources influence group routines, the acquisition of resources and the development of internal resources. Data consisted of 270 observations from European professional football leagues over a five-year period. The results confirm that the edifice of competitive advantage is based on a complex resource bundle based on non-obvious interactions between its elements. The complex inter-linkages, reinforcing effects and trade-offs between resources require non-obvious decisions regarding their employment and are best understood by experienced managers.

Key words: resource-based view, teams, competitive advantage, group routines, managerial experience, resource trade-offs

INTRODUCTION

“The whole is more than the sum of its parts” is a typical saying linked to successful (sports) teams (Katzenbach & Smith, 1993). While research on sports teams suggests that ability and coordination play a particular role in understanding team performance (Wolfe et al., 2005), it also appears that the true value of individual ability is not obvious: “If general managers really were perfect judges of talent, there would be no need to play the league schedule to determine the league champion – we’d simply award the title to the team with the highest payroll” (Quirk & Fort, 1999: 85). The two quotes indicate that neither the identification of individual abilities nor the management of individual abilities to form a successful sports team are trivial tasks. Moreover, the focus on only the direct effects of isolated resources on team performance that has characterized sports research rooted in an economics tradition reduces team performance to the sum of individual contributions.

Sports teams are a particular representation of ‘performance’ teams understood as teams that are responsible for the main product or service of an organization: the main product is a ‘performance’ (Crown, 2000) such as a stage play, a concert or a game in sports. In line with tradition in research on teams (see for a discussion e.g. Cohen & Bailey, 1997; Guzzo & Dickson, 1996; Sundstrom et al., 1990), we define teams as a “collection of individuals who are interdependent in their tasks, who share responsibility for outcomes” and who see themselves and who are seen by others as a social unit that is part of a larger organization (Cohen & Bailey, 1997: 241). Sports teams correspond to the above criteria in terms of internal team structure but also by being part of a larger organization (the club). In this setting, ability based on human resources and the coordination of these resources through managerial ability appear to be particularly important for team performance (Wolfe et al., 2005). The resource-based view (RBV) explains performance differences on the basis of resource heterogeneity within given industries (Peteraf & Barney, 2003). An important question posed by the resource-based view of the firm concerns the way resources are associated with competitive advantage through superior value creation, to give firms the prospect of improving performance (Barney, 1991; Conner, 1991; Newbert, 2008; Wernerfelt, 1984). It has been argued both that the study of sports teams can inform RBV and that RBV logic can be applied to studying the performance of sports teams (Gerrard, 2003; Holcomb et al., 2009; Sirmon et al., 2008; Wolfe et al., 2005; Wright et al., 1995). While substantial progress has been made in understanding the direct effects of individual resources on value creation (Crook et al., 2008), researchers studied only certain resources and often only one resource or capability (Newbert, 2007), rarely unbundling which particular indirect resources influence value creation (Hoopes et al., 2003). Moreover, the relationship between managerial abilities and resource value creation has been largely neglected (Holcomb et al., 2009; Hughes et al., 2010), a considerable neglect if one considers the important role that is attributed by the RBV to organization-specific resources (Sirmon et al., 2008) and their complementarities (Adegbesan, 2009) for organizational performance. As a consequence, the interplay between resources for value creation, or in other words how some resources moderate the performance

effects of other resources, have hardly been studied either in RBV research (Newbert, 2007) or sports team research (Wright et al., 1995).

We attempt to fill this gap by moving the focus from direct effects to the interaction of resources: we analyze the moderating effects of managerial experience, internally-developed resources (as a form of highly organization-specific resources) and financial resources on the resource-performance link in sports teams. Managerial experience (while having direct effects on team performance) can influence the priorities in selecting and combining resources, which will impact other value-creating resources. The origin of resources (developed or acquired) will alter the stock of industry-specific and organization-specific resources of a sports team while also moderating the performance relationship of other resources. Financial resources enable firms to act, but the availability of financial resources will also influence the management priorities for managing other resources. However, superior value creation cannot be explained by financial resources alone. In essence, the main contribution of our research is to understand when the whole is more than the sum of its parts for sports teams by focusing on the interaction between value-creating resources.

THEORY AND HYPOTHESIS DEVELOPMENT

Resource positions and superior value creation in sports teams¹

The resource-based view assumes that basically all value-creating resources that are heterogeneously distributed can lead to superior value creation (Barney & Peteraf, 2003). Human resources contribute to value creation in skill-based industries ranging from professional sports to consulting (Groysberg et al., 2008a; Wright et al., 2001). In sports teams, human resources are the key resources. Grant (1996) and Simon (1991) proposed that individual skills differ and are a source of competitive advantage. The supply of skills is not homogeneous but rather normally distributed (Steffy & Maurer, 1988). As a consequence, specific skills vary by type, depth and quality and can also be rare (Wright et al., 1994). Since particular human resources are the outcome of personal abilities, training and other unique historic and context-specific factors, they are hard to imitate (Wright et al., 1994) but they are mobile (Coff, 1997). It is possible to distinguish between: 1) general human; 2) industry-specific; and 3) organization-specific human capital (Sirmon et al., 2008). The first is used in different organisations; the second is of use for organisations within the same industry; while the third is of use in a specific organisation (Becker, 1962; Castanias & Helfat, 1991). One could also extend this view to sub-units of an organization, with the notion of team-specific human capital.

Basically, if an organization can possess comparatively higher industry-specific skills than rivals, a firm will create more value (Sirmon et al., 2008). However, organisations can create additional value by having a comparative advantage in organization-specific human capital (Felin & Hesterly, 2007). Resources already owned by firms, and especially internally-developed resources, can vary in terms of industry-specific and organization-specific components, while resources recently acquired from factor markets will vary mainly in terms of the industry-specific component. What matters most depends largely on the differential in skill sets between firms concerning

1. Given the maturity of the RBV, we did not develop specific hypotheses for the main effects.

industry- and organization-specific resources. Acquired resources, however, can also vary in terms of complementarity with existing resources and thus lead to additional value differentials (Agdebesan, 2009). The same reasoning applies equally to managerial ability, which is also subject to variation in industry- and organization-specific skills and thus value creation (Holcomb et al., 2009). In teams, a third component appears to be important: the synchronising of resources or the development of team routines (Berman et al., 2002). Routines are organisational capabilities that include tacit knowledge through learning and repetition (Grant, 1991; Helfat & Peteraf, 2003; Winter, 2000; 2003). Players can also vary in terms of organization-specific and team-specific human capital created through experience within the club and with the other team members, and in terms of realized complementarities. Therefore, it can be assumed that internally-developed resources can positively influence sports team performance because of the high organization-specific component, while acquired resources can do so because of the potentially higher industry-specific skills and the possibility of greater complementarities. Team routines as a higher-order capability should strongly influence team performance.

Research dealing with value creation and consequently competitive advantage from an RBV showed that both the quality of players and the quality of coaches influence team performance (Harris, 2009; Holcomb et al., 2009; Sirmon et al., 2008; Smart & Wolfe, 2003). Concerning the relative value of management versus player quality, the studies came to similar conclusions. As player quality increases, the value creation potential of coaches diminishes (Harris, 2009; Holcomb et al., 2009; Smart & Wolfe, 2003); in cases of similar player quality, increases in coaching ability lead to increasing team performance (Sirmon et al., 2008). It appears, however, at least for basketball, that the effective value creation potential of coaches depends also on whether the coaches are able to implement their preferred playing style (Wright et al., 1995): in other words, the personal career development of a coach leads to a certain specialization (in terms of preferred playing style) thus requiring not only complementarities between the players but also between a coach and the team. Finally, tacit knowledge in the form of group routines as higher order capabilities were a strong predictor of team performance in basketball (Berman et al., 2002).

Therefore, in terms of value creation, RBV research in general but also in sports teams has largely confirmed that variations in resources, capabilities such as routines and managerial ability create differential value (Crook et al., 2008), but what is less understood is how interactions among resources moderate, positively or negatively, the relationship between resources and value creation in teams. Strategy not only involves decisions about trade-offs and priorities but also the mutual reinforcement of resources and capabilities. A competitive advantage can arise because of the interconnectedness of resources (Dierickx & Cool, 1989): one resource will influence the potential development of another resource. As a consequence, the analysis of which factors can moderate the resources driving performance helps us to better understand superior value creation in teams. In particular, RBV research in team sports has largely neglected the question of team effects, i.e. when the whole is more than the sum of the parts, most likely by over-valuing the contribution of the performance of individual players (Groysberg, 2008a,b) and not accounting for resource interactions. Our study exclusively focuses on interaction effects and thus constitutes a contribution to the field of sports teams and the RBV.

Moderators of the resource position – performance relationship in sports teams

Internally-Developed Resources and Routines

In the RBV there is an unresolved debate about the role of resource origin, which is usually not explicitly implemented in RBV research as having an impact on the value creation potential of resources. To implement a strategy, a bundle of resources and capabilities is necessary. Strategic factor markets arise when firms need to acquire resources to implement a strategy (Barney, 1986a). However, Dierickx and Cool (1989) argued that some resources, especially intangible ones built over time, cannot be acquired on factor markets: they are not mobile and need therefore to be amassed internally. Valuable, internally-developed resources are therefore preferable to equivalent resources acquired externally from factor markets. For the question of value creation, resource origin leads to variation in industry-specific and organization-specific resources (Holcomb et al., 2009). An unaddressed question, however, is whether resource origin can affect the relationship between other value-creating resources.

Group routines are considered as superior value drivers even if they can inhibit change in the long run (Leonard-Barton, 1992). Group routines arising through interaction and learning mechanisms among members of the team are not only subject to time-diseconomies, they are also socially complex. They are necessary to coordinate interdependent activities (Cohen et al., 1996), the result of organization-specific learning processes (Amit & Schoemaker, 1993; Dierickx & Cool, 1989). To develop capabilities through routines it is crucial to achieve cooperation and coordination, leading finally to a team's particular playing style. Examples of important drivers of cooperation are the organization's culture, tradition and leadership (Grant, 1991). These routines are learned and repeated time after time (Winter, 2000). Learning takes place within the context of the organization, with infrastructure, processes, culture and team interaction each playing a role (Groysberg et al., 2008a). What types of resources can help to develop routines? Only industry-specific human capital can be traded; in football, for example, the player's technical and physical skills, position knowledge, knowledge of playing schemes, and adaptation to the abilities of opponents. Organization-specific human capital appears to depend on specific working mechanisms and processes, interaction with others and dependence on the work of others within an organization. Capabilities usually call for long-term investment in specialised resources, needing substantial continuity in personnel and firm infrastructure (Winter, 2003). Internally-developed resources are acquired within an organization-specific context including an organisation's culture and processes and thus are highly organization-specific. Therefore, capability development is reinforced through internally-developed resources (Schwenk, 1993). Moreover, it is argued that an organization's internal knowledge will reinforce its capacity to absorb external resources including knowledge (Macher & Boerner, 2006) and thus organization-specific resources may facilitate the integration and blending of acquired resources. Research on star resources in industries which have limited organization-specific effects, such as baseball players and financial analysts, showed that individuals performed less well after transfer, suggesting that the organization-specific skill component is more important than previously assumed (Groysberg, 2008a, 2008b). Becker's (1976) early work on collaboration showed a skill decrease occurring upon transfer

from a collaborative work environment, leading to the conclusion that teams rather than individuals are the locus of superior value creation (Henderson & Cockburn, 1994; Kogut & Zander, 1996; Nelson & Winter, 1982). Therefore, the organization-specific value is lower for the acquiring organization than for the initial owner of the resource. As a consequence, factors that help to facilitate the integration and blending of acquired resources with existing resources will reduce the value decrease. Increased integration will lead to a lesser difference between value expectation and performance and thus increase satisfaction with the acquired resources in the eyes of the acquiring organisation, which will also translate into increased motivation and satisfaction for the acquired resources (players) themselves (Coff, 1997). The decision of human resources to change employment is always affected by uncertainty since they will not know beforehand whether they will be better off after the transfer (Wright et al., 1994). As a consequence, ease of integration should on the one hand increase job satisfaction and on the other hand also increase the organization-specific value and thus reduce turn-over and favour group stability (Coff, 1997).

Individuals who spend their whole career with the same organisation could be considered ambassadors. They have internalized the organisation's norms, helping to reduce task conflicts (Jehn, 1995) and promoting the social integration of other team members (Smith et al., 1994), not to mention facilitating effective communication between top management and the team (Malone, 1987). Thus, internally-developed resources might help to strengthen collective team identification, which facilitates team-learning and performance (Van der Vegt & Bunderson, 2005). In addition, internally-developed human resources are organization-specific and carry embedded organization-specific tacit knowledge (Berman et al., 2002). Social contact with these internally-developed resources (senior players) should help to transfer organization-specific tacit knowledge to the group (Nonaka, 1994). Internally-developed human resources are thus the foundation on which to build with other resources, and thus constitute reinforcing effects. In football, these could be players coming from the club's youth training program helping to mitigate resource diversity, thereby aiding the development of group routines. We therefore propose the following:

HYPOTHESIS 1. Group routines as a team capability have a direct positive effect on the performance of sports teams. The relationship between group routines and performance of sports teams is positively moderated by internally-developed resources. Internally-developed resources increase the effects of group routines on sports team performance.

The role of management in value creation

To implement any strategy, management capabilities are needed (Barney, 1986a; Conner, 1991; Penrose, 1959). The capacity of managers to understand and use resources to create value is a resource in its own right (Holcomb et al., 2009). Firms can gain a competitive advantage by developing different strategies by "tightly linking resources together in mutually reinforcing configurations" (Bingham & Eisenhardt, 2008: 246).

If firms are heterogeneous because of heterogeneous resource bundles, then the degree of complementarity of a given resource is different across organisations (Thomke & Kuemmerle, 2002). Therefore, externally-acquired

resources create superior value when combined with internal resources (Adegbesan, 2009; Wernerfelt, 2011).

What types of resources then add value to teams? We assume that organisations will buy those human resources perceived as most complementary to the existing team. Who is best qualified in selecting the appropriate resources? Able managers. What factors influence the ability of managers to structure, bundle and leverage resources? Holcomb et al. (2009: 459) assert that "managerial ability derives from two main sources: domain expertise and resource expertise". Domain expertise involves understanding the competitive context of organisations and potential strategies gained through education and 'learning-by-doing'. Experience-based domain expertise will result in tacit knowledge that helps to define appropriate strategies in a given competitive context (Spender, 1989). Resource expertise refers to structuring, bundling and deploying resources (Holcomb et al., 2009; Sirmon et al., 2007). For both types of expertise, management ability is a function of experience acquired over time encompassing industry- and organisation-specific components. The general correlation between performance, ability and experience (Holcomb et al., 2009; Sirmon et al., 2008) suggests there is a virtuous experience cycle. In other words, experience will drive ability as well as ability will drive experience. This is to say that a manager who is able will continue to have opportunities to manage teams.

As a consequence, experienced managers will be particularly able to value a team's human resource pool, identify gaps and try to align it as far and as fast as possible with a potential value-creating strategy (Holcomb et al., 2009; Wright et al., 1995). Through experience, managers will be capable of judging the development potential of existing human resources, in identifying resource gaps and in finding the most appropriate solutions in the factor markets. In addition, managers will in general have a preferred set of value-creating strategies that they will try to implement; as a consequence, they will be able to define complementarities more clearly (Wright et al. 1995). Experience can also have an additional effect: the increasing experience of a manager will correlate with an increasing number of people the manager has worked with in the past, giving more options to acquire resources with a reduced value uncertainty (Groysberg, 2008a), or in other words, experienced managers are likely to have more private information about the value potential of a resource (Chatterjee, 1990). In conclusion, we argue that managerial experience allows a coach to select additional players more successfully, to better take into account complementarities of externally-acquired resources with existing ones. Thus, we propose:

HYPOTHESIS 2A. The relationship between externally-acquired resources and performance of sports teams is positively moderated by managerial experience. Managerial experience reinforces the impact of externally-acquired resources.

Team routines are considered as essential for team performance (Berman et al. 2002). Research was able to show that player turn-over has a negative effect on team performance (Groysberg et al., 2004). While team routines are positive for team performance, they can eventually become core rigidities

(Leonard-Barton, 1992). Moreover, human resources need to be motivated and too little change may reduce motivation (Coff, 1997). However, assuming similar resources and motivation, routines will create differential value (Berman et. al, 2002). If experienced managers are better in portfolio structuring then they will be capable of completing a team with fewer changes compared to less experienced managers, because they understand better which players are missing and they have a higher success rate in selecting the appropriate players, leading to comparatively less change. In addition, tenure will reduce turnover and create more stability in the use of team resources. Team stability will favour shared experience and a better understanding of how to make team members work together. Over time, managers will develop organization-specific tacit knowledge in bundling and using a team's resources, further increasing stability and thus group routines (Hambrick & Fukutomi, 1991; Helfat & Peteraf, 2003). Finally, increased management experience increases a manager's credibility and will facilitate the motivation of players. As a consequence, experienced managers will create value for teams with fewer changes, augmenting team routines.

HYPOTHESIS 2B. The relationship between group routines and performance of sports teams is positively moderated by managerial experience. Managerial experience increases the effects of group routines on sports team performance.

Organization-specific capabilities are embedded in larger managerial systems and value systems (Leonard-Barton, 1992; Zucker, 1977). Values and norms are the outcome of an organisation's early history, top management's crucial decisions imprinted through behaviours and beliefs repeated and accumulated over time (Kimberly, 1987) while managerial systems are the result of employees' "sense-making" concerning their roles within the organisation (Giddens, 1984). In the first place, a manager joining a team will need to understand the value and managerial systems of the organisation. Industry experience will help managers better understand resources in general. With time they will gain more organization-specific knowledge and a deeper understanding of the resources under management. Management experience helps to improve existing resources (Henderson & Cockburn, 1994). Since team performance is the outcome of collective value creation (Felin & Hesterly, 2007), experienced managers have advantages in bundling and deploying resources (Holcomb et al., 2009; Sirmon et al. 2007). Increasing organization-specific tacit knowledge will increase a manager's ability to extract more value from other highly organization-specific resources (Wright et al., 2001). Learning within the organisation and adaptation increase: over time, managers will become increasingly part of the managerial system of an organisation, adapt to its value system and acquire an increased sense of belonging (Leonard-Barton, 1992; Rowe et al., 2005). Over time, managers will create stronger social relationships within the organisation, which will increase 'homophily' and thus favour team building (Ruef et al., 2003). Managers will therefore tend to focus their attention on more organization-specific resources. Social and emotional support might increase this inward focus (Thoits, 1984). Football coaches, for example, become more committed to a club's culture over time and turn their attention to the development and integration of players from the youth training

program. Most importantly, experienced managers will be capable of extracting more value from organization-specific resources.

HYPOTHESIS 2C. The relationship between internally-developed resources and the performance of sports teams is positively moderated by managerial experience. Managerial experience increases the performance effects of the deployment of internally-developed resources in sports teams.

Financial resources and their impact on the use of bought resources, internally-developed resources and group routines

Financial resources are obviously enablers for and constraints on what an organization can do. More financial resources means fewer constraints but if immobility and tradability issues are important for the RBV, the question remains of how fewer constraints through greater financial resources will influence value-creating resources. The most obvious assumption brought forward is that more financial resources allow the acquisition of more industry-specific human capital and a less restricted choice when it comes to finding stronger complementarities. Thus:

HYPOTHESIS 3A. The relationship between externally-acquired resources and the performance of sports teams is positively moderated by financial resources. Financial resources increase the performance effects of externally-acquired resources in sports teams.

In general, commitment to some resources to exploit opportunities means foregoing other opportunities (Barney, 1989). Firms need to decide which capabilities to invest in, based on existing resources and capabilities and the value potential for the firm (Prahalad & Hamel, 1990). Given limited resources there are always trade-offs in resource allocation decisions. Empirical research on the resource-based view, by focusing on resources in isolation, has largely neglected these trade-offs (Newbert, 2007; Parmigiani, 2007). Trade-offs do not only relate to priorities in developing internal resources but also to choices about the make-or-buy mix. A make-or-buy continuum appears to prevail in the resource-based view (Parmigiani, 2007): firms that source concurrently either buy a small percentage of the resource (predominantly developing their resources internally) or they buy a large percentage (predominantly buying). If resources are assumed to be scarce, the decision to develop resources internally or to acquire them from the outside constitutes a trade-off. In other words, the more you buy, the less you develop internally. We have argued that complementary factor markets exist to complete, refine or further develop competitive advantage.

Again, however, firm specific-capability development is institutionalized in larger managerial systems and value systems (Leonard-Barton, 1992; Zucker, 1977) leading over time to a certain 'behavioural style' imprinted in the organization (Kimberly, 1987). Financial constraints are often associated with internal development of resources, with the result that differentials in financial resources can translate into more capital-intensive value creation strategies (Schmidt et al. 2007). Relatively more financial resources can favour experimentation through less strict performance monitoring (Greve, 2003). The release from financial constraints can lead firms to more aggressive strategies

favouring acquisition over internal development (Schmidt et al., 2007; Schultz & Zaman, 2001; Shrader, Monllor & Shelton, 2009). Differential financial resources will thus favour management systems based on acquisition of resources leading to specific decision-making processes: organizations that mainly buy resources develop stronger capabilities in buying than in developing resources. In addition, the buying decision leads to sunk costs. These sunk costs will give priority to those resources for which most investment has taken place: it could be shown for basketball that investments made in players increased playing time (Staw & Hoang, 1995). Given the allocation of more resources for buying, a systematic under-investment in the development of internal capabilities can occur, resulting in less consideration for valuable internally-developed resources. Thus, we propose:

HYPOTHESIS 3B. The relationship between internally-developed resources and performance is negatively moderated by financial resources. Financial resources decrease the performance effects of deploying internally-developed resources in sports teams.

HYPOTHESIS 3C. The extent to which teams acquire resources decreases the extent to which internal resources contribute to sports team performance.

Skill-based industries are talent-based industries characterized by a “war for talent” creating rather mobile factor markets (Staw & Hoang, 1995). As a consequence, retention of talent is important, which in itself favours the development of group routines through continued interaction of team members. Differentials in financial resources allow firms to pay competitive salaries as the simplest solution for retaining talent (Weiss, 1990). Another factor influencing retention is job satisfaction (Coff, 1997). Retention (through job satisfaction) is also based on “perceived equity” (Berkowitz et al., 1987), especially in the case of team production where individual contributions are difficult to entangle (Felin & Hesterly, 2007), increasing the need for fair distribution (McFarlin & Sweeney, 1992). More financial resources can favour pay satisfaction by reducing internal pay differentials through a general higher base salary for all team members while more constrained organizations might tend to increase internal pay differentials in order to reward talent because of the need to set priorities under financial constraints. Moreover, financially constrained organizations can hardly offer the prospect of higher future expectations without incurring distributive injustice, thus increasing potential turnover (Sweeney et al., 1990). Finally, research on sunk costs (as a result of greater financial resources) showed that sunk costs also lead to a higher retention of valuable resources (Staw & Hoang, 1995).

Hypothesis 3D. The relationship between group routines and the performance of sports teams is positively moderated by financial resources. Financial resources increase the effects of group routines in sports teams.

METHOD

Sample

Our sample of 270 team observations consists of teams that competed in the first division between seasons 1998/99 and 2002/03 in the professional football

leagues of Germany, Italy, Spain, England and France. We constructed a database by using official sources from the football federations, and cross-checked these with reliable sports publications. Concerning the data on players, for each team and each year, we used the fifteen players that played the most minutes during the season, resulting in 4,050 individual player records. The teams are subject to standard rules of competition, which increases the validity and reliability of this study. The results are consequently comparable from league to league, and constitute effective performance measures (Berman et al., 2002). Table 1 provides the descriptive statistics and the correlation matrix between items.

Table 1. Descriptive Statistics, Means, Standard Deviations and Correlations

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1. Champ. points	51.9	10.9											
2. Goal difference	8.4	17.4	.54***										
3. Goals scored	52.4	12.3	.45***	.83***									
4. Common experience	15.4	9.1	.34***	.24***	.26***								
5. Years played with club	3.4	1.1	.36***	.27***	.30***	.87***							
6. Youth program	0.1	.3	-.06	-.14**	-.12*	.34***	.26***						
7. Coach tenure	2.7	2.6	.19***	.21***	.16**	.17**	.18**	.09					
8. Coach experience	378.8	301.6	.03	.13*	.14**	.14**	.12*	.16**	.43***				
9. Budget	2.3	0.7	.44***	.46***	.37***	.07	.08	-.07	.14*	.02			
10. Stadium size	44562	20099	.34***	.30***	.32***	.30***	.29***	-.09	.04	.07	.38***		
11. Cultural diversity	5.8	2.0	.18**	.13*	.08	-.18**	-.12*	-.24***	.07	.01	.22***	.18**	
12. Years played bef. club	2.5	1.3	.21***	.20***	.16**	-.11	-.01	-.33***	-.06	-.16**	.28***	.20***	.26***

* p < .05; ** p < .01; *** p < .001

Measurements

Team Performance. In the European football system, a team gains three points for a win, one point for a draw, and no points if it loses. To measure the team performance factor, we used the following: number of points gained, goal

difference (goals scored minus goals conceded), and number of goals scored at the end of the season. The five football leagues have between 18 and 20 teams; we therefore normalised the average points per season to a league size of eighteen teams. Our measurements are therefore consistent as a measure of competitive advantage.

Internally-Developed Resources. Players typically join the club at a young age (between 8 and 14); once they are 18, they can be integrated into the professional team at no cost or transferred to another club to generate revenue. Not all players from a club's youth training program make it to the professional level; investment in the youth system is therefore an uncertain investment. There is, however, a strong bond between the professional team and the youth program; the young players 'belong' to the club, they are a club's internally-developed resource (from young amateurs to adult professionals). If a player is still under contract or is part of the club's youth program, an external buying team has to negotiate a transfer fee with the player's club. In this sense, buying from the market means buying a player from another club's youth program or professional team.

Only players in a club who played in the professional team and had been developed within the club's youth program (as well as being one of the fifteen most used players during a season) were counted as an internally-developed resource. For each team, we calculated the ratio of players that had passed through the club's own youth program for each season. We consider the number of players coming from a club's youth program to be an indicator of its internal resource development capacity as opposed to buying players. This single indicator variable strongly reflects the use of 'internally-developed resources'. We believe the use of a single indicator was justified, since the measurement and the construct are interchangeable (Hulland, 1999): this practice is in line with comparable previous research (Birkinshaw et al., 1995).

Externally-acquired Resources. This construct is composed of externally-acquired experience (the relevant industry experience before joining the club) and cultural diversity. We measured the value of externally-acquired resources through individual experience, which is the result of the accumulation of industry-specific skills over time. The average age of the team players was not used as a proxy (Berman et al., 2002) because the mean age of players has limited variation. There is, however, greater age variation at which players start playing in the first division. We therefore developed a yardstick for relevant industry experience by calculating the years each individual player had played in the first divisions of all the countries concerned. This is an appropriate measure of relevant individual industry experience and a measure of resource value, assuming that a player with more seasons in the first division has more industry-specific skills. Accumulation of experience increases industry-specific individual tacit knowledge (Berman et al., 2002). Those players who have amassed more industry-specific experience will be likely to add more value to the team (Holcomb et al., 2009). Having played longer and remaining in demand is a measure of a player's quality (Holcomb et al., 2009)². In this way, we were able to measure individual experience before joining a specific club, a partial measure of externally-acquired experience.

Clubs will also focus on resources that are missing and/or cannot be developed

2. There is obviously a natural limit to the value of experience due to decreasing physical ability with age but since our measure is based on experience and not age, we partially avoid this problem; moreover, lack of physical ability will usually lead to the end of a sports career: any study of sports thus exhibits some form of 'survival' bias.

internally (Simon 1991). For instance, researchers examining groups see diversity as an important performance driver (Hoffman & Maier, 1961). Watson et al. (1993) found that diverse teams perform better than homogeneous teams after a short period of blending-in. For example, diversity increases open-mindedness, creativity, problem-solving capabilities and flexibility (Adler, 1991; Hambrick et al., 1996; Hoffman & Maier, 1961; McGrath, 1984). Diversity, however, also poses challenges (Miliken & Martins, 1996). Problems can arise from team diversity when integrating and developing work-team processes, such as emotional conflict in team tasks rather than task conflicts because of functional differences (Hambrick et al., 1998). Research has, however, established that emotional conflict does not impact negatively on team performance (Pellet et al. 1999). Based on Watson et al. (1993) and Hoffman and Maier (1961), we assume that team diversity in football strengthens the teams' competitiveness and is therefore a value driver³. Hence, the development of cultural diversity cannot occur internally: only players trained in foreign clubs are likely to acquire different skills associated with different playing styles. One way to measure cultural diversity is to count the different nationalities, since diversity is identifiable and has been the subject of research on individual differences (Hamrick et al., 1998). Using players' country of origin as a measure, we counted the number represented in each club.

Group Routines. We used the number of years a player had spent with the club, participating in the development of group routines, as a measure of acquaintance with the club's organisational culture (Berman et al., 2002). This measure has been commonly used as a measure for team tenure (e.g. Boeker, 1997; Wiersema & Bantel, 1992); however, it rather measures organizational tenure and not team collaboration and tends to over-estimate team collaboration (Harris & McMahan, 2008). During a football game, eleven players need to move coherently to score goals and defend their position from attack. That is to say, the players are interdependent (Thomke & Kuemmerle, 2002), context-specific and team-specific (Groysberg et al., 2008a). Individual players will learn the tactics of colleagues and know how they move at each moment. Unlike previous work we do not use a measure of acquaintance with the club's culture as the only measurement (Berman et al., 2002), but measure both direct common experience between players and time spent with the club, as suggested by other research (Harris & McMahan, 2008). Therefore, we measured group routines in years according to common experience of pairs of players. For each player, we first calculated the years of experience with other players. We then calculated the average common experience of a player per team. This measure, we believe, captures group routines, since the more time a player has played within the team, the greater the familiarity, facilitating group routines (Harris & McMahan, 2008).

Management Experience was measured by counting the number of first division games the coach had managed before joining the club, representing industry-specific coaching skills and quality. Finally, we measured tenure: how many years has the coach managed the team? It is a proper measure of organization-specific managerial experience because it captures path-dependency and measures management capability⁴. This measure matches

3. In football, there is a strong tendency for country-specific playing styles leading to different experience based on national origin. Moreover, diversity in football teams is not linked to functional diversity, which can have negative effects on team performance (Bunderson & Sutcliffe, 2002). National playing styles influence the competencies of a player (Lanfranchi & Taylor, 2001; Finn & Giulianotti, 2000).

4. Research indicated curve-linear path-dependent effects leading to different phases. While estimates for the different phases (positive/negative) are difficult (Hambrick & Fukutomi, 1991), research from sports and business suggests a range between 6 years and 13 years for positive effects (Miller 1990; Hambrick & Fukutomi, 1991; Eitzen & Yetman, 1972; Giambattista, 2004). Research on research and development teams showed positive effects for only four years (Katz, 1982). In football, coach changes happen more often than in other sports. A period of tenure beyond ten years is rare in European football (average < 3 years), therefore, we assume only positive path-dependent effects. While we agree with using phases in tenure models, we do not expect a negative phase to occur in our setting (Hughes et al., 2010). We controlled, in additional models, for curve-linear effects but as expected there were no such effects in our study.

the research of Hughes et al. (2010). We did not use performance measures of the coach with previous teams because of potential endogeneity issues (Berri et al., 2009).

Financial Resources. Access to financial resources will influence what companies can do, what resources they can acquire and how easily resources can be retained. The measurement of financial resources included the club's annual budget. To reduce league differences, we divided the teams in each league into three categories according to budget: high, mid-range and low. The categories reflect the real budget differences so that the mean value of the high-budget clubs is three times the mean budget of the low-budget clubs. In this way, country-specific bias is eliminated (such as difference in TV rights per country). Finally, we used stadium size as a measure of financial leverage (Brown et al., 2004).

Model Estimation

Levitas and Ndofo (2006) argued that research on the resource-based view should use methods that allow the modelling of interactions among resources and capabilities, in other words techniques allowing multiple paths between latent variables. We selected partial least squares (PLS) path modelling, which fully meets these requirements and reveals associations that might not appear with standard regression or covariance-based structural equation model (SEM) methods (Wilcox, 1998). PLS path modelling focuses on maximising the variance of the dependent variable explained by the independent variables (Wold, 1975, 1982). It is robust in handling deviations from normality and data measured on different scales (Cassel et al., 1999, 2000; Chin et al., 2003; Chin & Newsted, 1999; Chin, 1998, 1995; Fornell & Bookstein, 1982; Lee & Tsang, 2001;). It clearly suits our aim to explore interactions of resource relationships since such an approach considers all path coefficients simultaneously. This allows analysis of direct, indirect, and spurious relationships and the estimation of multiple individual item loadings in the context of a theoretically specified model, avoiding biased and inconsistent parameter estimates for equations. Before analysing the data, all variables were centred to have a mean of zero. We tested hypotheses and explored the relationships between constructs using Smart-PLS (Ringle et al., 2005), which has a well-developed module for analysing moderating effects.

ANALYSIS AND RESULTS

Model Assessment

The composite reliabilities and correlations among the factors are listed in Table 2. Internal consistency, measured through factor loadings, was above the recommended cut-off limit of 0.60 (range 0.70 to 0.98) (Barclay et al., 1995; Tabachnick & Fidell, 2000). The composite scale reliability exceeded the recommended minimum of 0.70 (range 0.77 to 0.98) (Fornell & Larcker, 1981) and convergent validity was above the accepted minimum of 0.50 for all factors (range 0.63 to 0.95) (Fornell & Larcker, 1981). To test discriminant validity we used the square-root of average variance extracted (AVE) (Carmines & Zeller, 1979; Fornell & Larcker, 1981; Hulland, 1999) and cross-loadings (Chin, 1998; Gefen et al., 2000). For all factors (see Table 2, diagonal of the matrix) the

former test yielded higher values than the bi-variate correlations between the latent variables. The cross-loadings test showed that no manifest variables loaded higher on any other factor than their associated factor (diff. range 0.17 to 0.65, median 0.46). These two tests therefore demonstrated strong discriminant validity. We controlled for potential time effects by creating a separate model with year dummies.

Table 2. Factor Average Variance Extracted, Composite Reliability and Correlations

	AVE	Composite reliability	1	2	3	4	5	6	7	8
1. Financial resources	0.69	0.81	(.83)							
2. Group routines	0.95	0.97	.24	(.97)						
3. Internally-developed resources	1.00	1.00	-.18	.38	(-)					
4. Managerial experience x internally-developed resources	0.77	0.87	.00	.07	.20	(.88)				
5. Externally-acquired resources	0.63	0.77	.32	-.15	-.48	-.11	(.79)			
6. Managerial experience x externally-acquired resources	0.59	0.85	.14	.12	-.09	-.59	.07	(.77)		
7. Managerial experience	0.71	0.83	.10	.19	.30	.60	-.04	-.26	(.84)	
8. Performance	0.73	0.89	.52	.37	-.09	.10	.25	.20	.19	(.85)

* $p < .05$; ** $p < .01$; *** $p < .001$

Test of Hypotheses

Figure 1 and Table 3 give the results of the tested PLS models. The R^2 for the latent variables in the model ranged from 0.01 to 0.32 and is comparable to values typically reported in performance research using PLS (see Fornell et al., 1990; Lee & Tsang, 2001). PLS is a non-parametric estimation procedure and does not, directly, allow significance testing based on statistical distributions, hence we used bootstrapping (i.e., sampling with a replacement method) (Efron, 1979; Efron & Tibshirani, 1993) to extract t-values to ascertain the stability and significance of the parameter estimates. In the theoretical discussion, we summarised resources generally associated with value creation in the RBV. These main effects are reported in Model 1. Model 2 includes the main effects and the research hypotheses that addressed moderating effects.

All main effects were significant but internally-developed resources had a significant negative effect on team performance ($B = -0.18$, $p < .001$), and externally-acquired resources had a significant positive effect ($B = 0.24$, $p < .001$). Group routines as higher-order capabilities had the strongest positive effect ($B = 0.47$, $p < .001$). Managerial experience had a significant positive effect on team performance ($B = 0.19$, $p < .01$). Besides the role of internally developed resources, our model confirms previous RBV research on direct effects.

The moderating effects constituted the hypotheses:

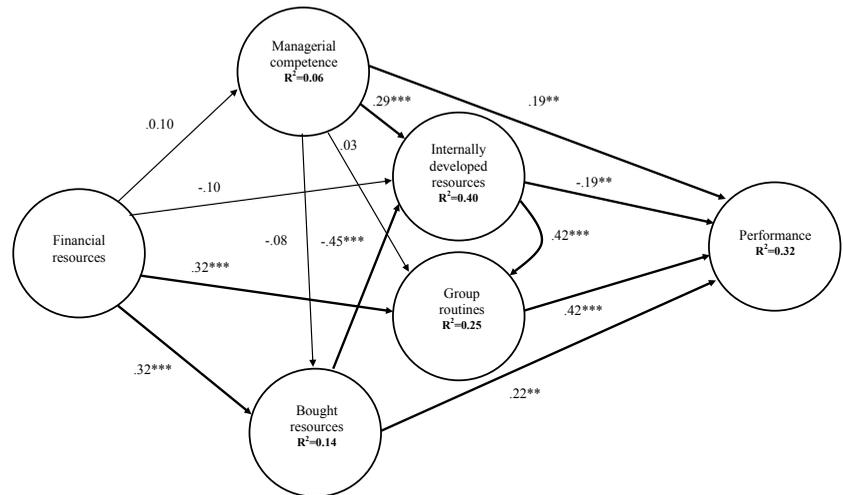
Internally-developed resources had a significant positive effect on group routines ($B = 0.42$, $p < .001$), therefore supporting Hypothesis 1. Managerial experience had a significant, positive effect on internally-developed resources ($B = 0.29$,

$p < .001$): the effects of internally-developed resources on performance were stronger among teams which had managers with more experience, although internally-developed resources played a declining role as performance increased. Managerial experience also had a positive and significant impact on externally-acquired resources ($B = 0.23$, $p < .001$). As with internally-developed resources, the relationship between externally-acquired resources and performance was positive among teams which had highly-experienced managers, with externally-acquired resources playing an increasing role as performance improved. We can therefore conclude that managerial experience has a positive impact on resource use irrespective of the gradient relationship of the resource with performance, thus confirming Hypotheses 2a and 2c. Managerial experience had no significant relationship with group routines ($B = 0.04$, n.s.). Hypothesis 2b is not confirmed. Financial resources had a strong effect on group routines ($B = 0.32$, $p < .001$) and externally-acquired resources ($B = 0.32$, $p < .001$), but a negative, non-significant impact with internally-developed resources ($B = 0.07$, n.s.). There was a trade-off between externally-acquired and internally-developed resources with a strong significant negative effect of externally-acquired resources observed on internally-developed resources ($B = -0.45$, $p < .001$). Hypotheses 3a, c, and d were supported. There was no significant effect of financial resources on managerial experience ($B = 0.1$, n.s.).

Table 3. Results PLS Models

	Model 1	Model 2
Main effects		
Internally-developed resources	-0.196*** (0.058)	-0.194*** (0.057)
Group routines	0.421*** (0.047)	0.422*** (0.049)
Managerial experience	0.196*** (0.059)	0.190** (0.063)
Externally-acquired resources	0.218*** (0.061)	0.222*** (0.064)
Two-way interactions		
Internally-developed resources x group routines (H1)		0.424*** (0.074)
Managerial experience X externally-acquired resources (H2a)		0.228*** (0.088)
Managerial experience x group routines (H2b)		0.030 (0.061)
Managerial experience x internally-developed resources (H2c)		0.291*** (0.050)
Financial resources x externally-acquired resources (H3a)		0.318*** (0.052)
Financial resources x internally-developed resources (H3b)		-0.067 (0.041)
Externally-acquired resources x internally-developed resources (H3c)		-0.447*** (0.049)
Financial resources x group routines (H3d)		0.316*** (0.053)
Financial resources x managerial experience		0.097 (0.082)
	Model R2	0.259
		0.323

* p < .05; ** p < .01; *** p < .001

Figure 1. Summary of results for full model

* $p < .05$; ** $p < .01$; *** $p < .001$

DISCUSSION

Resource-based research sustains the assumption that organisations (and thus teams as subunits) create value through internally-developed and complementary, acquired resources, through the management of resources and the development of routines. We used the RBV to understand the performance of sports teams. Both RBV research and sports research has focused too heavily on isolated direct effects of resources, neglecting an essential issue for teams: when the whole is more than the sum of the parts. Efficiency studies tend rather to study when the whole is less than the sum of the parts assuming an a priori 'objective' value of resources (Dawson et al., 2000; Haas et al., 2004) even if both the RBV and other literature on teams suggest that the true value of individual abilities is difficult to estimate (Quirk & Fort, 1999; Groyberg, et al. 2008) since in teams these individual resources have been coordinated by managers with different levels of ability and contributed to team performance in an interplay with other players with greater or lesser complementarities (Wolfe et al., 2005). In this study, we attempt to advance the understanding of sports team performance by investigating the role of moderators on the key factors of team performance. Our research, by considering the interplay between resources, focuses on how human resources, which are mobile, lead to superior value creation in sports teams.

We did not develop hypotheses for main effects that had been tested elsewhere but surprisingly, we found that internally-developed resources had a strong (direct) negative effect on sports team performance when the moderating effects were not considered. How can this be interpreted? The use of internally-developed resources depends on the development ability of a sports club (which in itself might be normally distributed). However, the internal development ability of one club needs to be compared to the global development ability

of all other clubs in the world. While the advantage of internally-developed resources is their organization-specific component, the completion of a team with externally-acquired resources permits clubs to have more choice for selecting highly complementary resources but also to increase the overall level of resources by acquiring a higher level of industry-specific skills. Indeed, we found that firms with more financial resources could increase the value-creating role of externally-acquired resources. We interpret this finding in line with recent conclusions about the concurrent importance of developed and acquired resources on the basis of complementarities (Agdebesan, 2009; Wernerfelt, 2011): organizations that depend too heavily on internal resources might do so because of financial constraints but also because these organizations may have developed an inward focus that makes them forego opportunities to successfully complement their existing resources and build a more complex resource bundle. Our analysis also revealed that there was no significant relationship between financial resources and internally-developed resources, which would have been the case if financially constrained clubs had no other options (in this case, there would have been a significant negative effect of financial resources on internally-developed resources). This result might suggest that even financially constrained clubs need to invest in both internal development and player scouting. Concerning the other direct effects, as expected, we found that managerial experience as a measure of ability (Dawson & Dobson, 2002; Holcomb et al. 2009; Hughes et al. 2010), group routines (Berman et al., 2002) and externally-acquired resources (Harris, 2009) had direct positive and significant effects on team performance.

We found that internally-developed resources increased the performance effect of group routines, and that managerial experience both increased the effectiveness of internally-developed resources and augmented the value-creation potential of externally-acquired resources. Financial resources led to a value-creation strategy that preferred resource-acquisition over development but that also favoured group routines through resource retention. Internally-developed resources help to build strong group routines. Not investing in internal resources can therefore be a mistake because of its impact on other resources. This finding is quite interesting since it shows the complexity a club's management and a coach has to deal with. Clubs have a certain heritage, systems and styles and internally-developed players are highly organization-specific resources. The presence of internally-developed resources and their effective deployment is helpful in forming a successful team that exploits team routines.

The ability of managers to understand and use resources in order to create value can be considered a valuable resource in itself. Our results, in line with existing research (Dawson & Dobson, 2002; Hughes et al. 2010), show that this ability improves with experience, and tenure with a team helps to improve organization-specific choices over time. In particular, managers create value through structuring the resource portfolio, bundling resources and leveraging capabilities for value creation (Sirmon et al., 2007). Managerial experience helps to extract more value from externally-acquired resources. This is an interesting finding since previous research could not distinguish the impact of managerial experience on the basis of resource origin. Managerial experience positively moderates the performance effects of internally-developed resources. While most sports team research analyzed coaches

from an efficiency point of view by comparing the percentage of wins achieved by the coach before and after joining the club or by comparing the percentage of wins by the team before and after the coach's arrival (e.g. Dawson et al., 2000; Haas et al., 2004), our research advanced understanding of where and why coaching experience adds value. The key message is that experienced coaches have a lower probability of error in selecting complementary players to complete the team and in employing organization-specific resources. Coaching ability (measured by experience in our study) might be globally undervalued in sports performance. Our study suggests that externally-acquired resources have a generally positive impact on sports performance, especially under the more able coaches, while internally-developed resources have a generally negative impact on sports performance but, if managed by the best coaches, their impact becomes positive. Coach experience had, however, no significant effect on group routines. Our interpretation of this result in combination with the other results is that in comparable situations coaches change teams to a similar degree but experience increases the effectiveness of these changes.

The decision to buy or develop is often regarded as a dichotomous choice in the resource-based view (Felin & Hesterly, 2007) but our results support the view of Agdebesan (2009) stating that existing internal resources should be complemented by external resources from factor markets. Financial resources favour acquiring resources over developing them internally. There is a clear trade-off between developing internal resources and buying resources. In football, it appears that some clubs have created their own style by preferring to acquire (e.g. Inter Milano) or to develop (e.g. Atlanta Bergamo) players, almost independently of internal or external options. The preference to buy reduces efforts to develop internal resources. However, as stated above, the effective deployment of internally-developed resources is positively moderated by managerial experience.

Financial resources help managers to restructure the resource portfolio but also to retain good team members. In this sense, financial resources help to preserve group routines and to complement a team with externally-acquired resources by raising complementarities between team members as well as the level of industry-specific resources. In this sense, our results support the view that the relationship between sports performance and wage spending is a circular one, since it concerns both the acquisition and retention of players (see for a discussion e.g. Nuesch, 2009; Torgler & Schmitt, 2010). While increased spending appears to have a positive influence on performance for mediocre performers, the influence becomes much less important if the top performing teams are included (Dell'Oso & Szymanski, 1991). Clubs with more financial resources appear to have the opportunity to invest in higher levels of industry-specific skills; however, out-spending rival clubs does not guarantee success (Quirk & Fort, 1999). Overall, ignoring relationships among value-creating resources leads to inconsistent results because of causal complexity in team performance. The role of managers seems to be critical in this regard: the longer tenure of experienced managers translates into a better understanding of the internal workings of relationships among organization-specific resources.

Limitations

Our results need to be considered in the light of the study's limitations. First,

we focused on the performance of football teams: generalisations need to be made with care. The main contribution of our research is to use the RBV to advance our understanding of sports team performance. Second, we distinguished between internally-developed and externally-acquired resources and treated group routines as a transformation of existing resources (and not as internally-developed resources), which highlights the difficulty of distinguishing between resource categories and resource origins. We decided to focus on the buying versus non-buying decision because, logically, the associated factor markets exist and are observable (which is not the case of a theoretical factor market for group routines). Also because, empirically, there would be no direct performance effects of externally-acquired resources in the empirical models if acquiring young players (with little experience) and transforming them would lead to the same results as acquiring experienced players. Third, our analysis does not directly allow us to assess the sustainability of competitive advantage of sports teams, which would be a desirable trait in the model; in this regard, our study is limited to the question of value creation but not necessarily value defence.

Extension and Future Research

The contributions this study makes are only a step towards a more thorough understanding of the complexity of managing heterogeneous resources for team performance. Future research might replicate this study in settings other than sports, in order to assess whether the findings generally hold in different industries. The interplay between organization-specific and industry-specific resources for sports team performance also leads to an important question: what is the right mix between players? Despite the limitations of this study, the results confirm that inter-relationships between resources drive sports team performance but also that markets exist for complementary valuable resources. Further research could specifically investigate the differential impact of player complementarities and player quality for sports team performance. We conclude from our study that: 1) it is the combination and development of high-quality resources that make a difference; and 2) the analysis of single resources hides important relationships. Managers need to consider performance drivers in a holistic manner, instead of focusing on the maximisation of a few key drivers. In the football setting, this might concern the utility of a club's youth training program to facilitate group routines, and the development of an effective scouting system.

To conclude, we advance the following proposition from our study: causal complexity, created through complex inter-linkages, reinforcing effects and trade-offs between resources requiring non-obvious decisions regarding their employment, and best understood by experienced managers with some tenure inside the organisation, can result in stronger value creation for sports team performance. Under these conditions, the whole might be more than the sum of its parts.

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Acknowledgments

The authors would like to thank José Pla-Barber and the anonymous M@n@gement reviewers for their helpful comments on earlier versions of this article.

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