

evidence (Carter *et al.*, 2003; Siciliano 1996; De Andres *et al.*, 2005; Carter *et al.*, 2010), diversity on board has also been associated with positive cognitive effects such as creativity, innovation, new ideas and insights (Goodstein *et al.*, 1994; Ruigrok *et al.*, 2007; Kang *et al.*, 2007; Deutsch, 2005; Miller and Triana, 2009).

Following previous research (Millikens and Martin, 1996; Erhardt *et al.*, 2003; Kang, 2007), board *diversity* can be defined as variety on the composition of the Board of Directors, which can be categorised in directly *observable* aspects (e.g. gender, age, nationality ...) and *less visible* ones (educational, previous work experience, , competencies ...).

According to many studies (Murray, 1989 ; Carter *et al.*, 2003 ; Siciliano, 1996 ; Erhardt *et al.*, 2003) this diversity provides the firm with several advantages such as greater creativity, better understanding of the market, effective problem solving and enhanced capability. Thus, board diversity provides a competitive advantage to the firm, and long term benefits. Resource dependence theorists have argued that the integration of diverse stakeholders into the board helps the organisation to acquire critical resources (Goodstein *et al.*, 1994 ; Pfeffer, 1972 ; Pfeffer and Salancik, 1978). The promotion of diverse perspectives can produce a wider range of solutions and criteria for strategic decisions, and reduce narrow-mindedness in board proposals (Kang, 2007 ; Kosnik, 1990 : Eisenhardt and Bourgeois, 1988).

As Huse (2007) recalls, there are also some downsides to diversity: diversity on boards may generate some coordination and communication difficulties, and diverse boards may need more time for discussion, and may lack some cohesion. Potential conflicts and misunderstandings may prevent the board from efficient decision making (Goodstein *et al.*, 1994).

### *The influence of Board diversity on Innovation*

As suggested by Miller and Triana (2009), the positive outcomes of board diversity help to relate board diversity to *innovation*. Board diversity provides the firm with human and social capital resources that help the board to generate ideas, allocate resources and find opportunities, thereby increasing innovation. The board of directors is a crucial factor that supports all the innovation activities and influences the level of firm innovation (Zahra and Garvis, 2000).

Innovation plays a vital role for the company, and is considered as one of the most important predictors of firm performance (Torchia *et al.*, 2011). Innovation is a key element for helping firms to gain competitive advantage (Hitt *et al.*, 1996), expand market share (Franko, 1989) and increase their performance (Morbey, 1988).

Some research investigated the link between governance and innovation strategies, focusing notably on the relationship between board demographic characteristics and firm innovation (Torchia *et al.*, 2011). Several studies have linked board diversity to innovation, as heterogeneity on boards can lead to broader range of ideas, greater creativity, thus higher level and quality of innovation. The heterogeneity of the top management team in terms of demographic characteristics such as age, nationality, gender, racial diversity, promotes innovation and influences the ideas and types of innovation in the firm (Hambrick and Mason, 1984; Torchia *et al.*, 2011; Olson *et al.*, 2006; Østergaard *et al.*, 2011; Talke *et al.*, 2010; Carter *et al.*, 2010). As Torchia *et al.* (2011) highlight, only a few studies investigated the effect of such patterns of board diversity, such as *gender* or *age*, on innovation.

In their study of the relationship between board diversity and firm performance, Miller and Triana (2009) suggest that innovation takes a mediating role, and they found a positive relationship between gender diversity and innovation. Torchia *et al.* (2011) found a positive link between gender diversity and firm organizational innovation, thus focusing on one specific pattern of diversity (gender) and one specific form of innovation (organizational innovation).

Consistent with these studies, this article aims at providing a better understanding of the link between board diversity and innovation, by considering *various patterns of diversity* as well as *various forms of innovation*.

This paper is structured as follows: the theoretical framework and hypotheses formulation are presented in the next session. The explanation of data and methodology is detailed in the "Methods" section. Presentation of results and discussion follow in "Findings and Discussion" section. We conclude with the outcome of our study's findings and its contribution to the literature.