Environmental Attitude in the Board. Who are the "Green Directors"? Evidences from Italy

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ABSTRACT

Board members' attitudes towards environmental protection are an important antecedent of how companies define and implement sustainability initiatives, but little is known about directors' attitudes and the factors associated with these. Using survey data on Italian board members, the research sought to explore the relationships between these individual's personal attributes, especially those related to their roles on boards, and their their attitudes towards environmental protection. The findings suggest that female directors, directors with financial background and independent directors are positively related to attitudes toward environmental protection. In the financial sector, younger board members and risk committee members show stronger environmental attitudes. The results could be of interest to policymakers because the board member attributes identified may require a stronger regulatory focus in order to achieve public policy's environmental protection objectives and to governance bodies in terms of defining board committees' composition and selecting "green directors" oriented towards environmental issues.

KEYWORDS

Board members attributes; environmental attitudes; environmental protection management; green directors; sustainable corporate governance; board design.

1. INTRODUCTION

Environmental protection and the relative environmental risk are key topics in the current debate about the future of the planet. In particular, environmental protection is defined by the EU

(Regulation 691/2011 on European Environmental Economic Accounts) as all activities and actions which have as their main purpose the prevention, reduction and elimination of pollution and of any other degradation of the environment. Those activities and actions include all measures taken in order to restore the environment after it has been degraded.

Environmental protection represents one of three core elements of the 2030 Agenda, together with social inclusion and economic growth, and is a milestone in sustainable development. Environmental legislation is increasingly stringent, and the consequences of climate change are extremely clear, even as stakeholders' sensitivity to environmental protection policies is growing (Maak et al., 2016). In developed countries, and increasingly in developing ones, environmental protection is now seen as a responsibility not only of governments but also of business.

Furthermore, the growing importance towards the environmental issue is showed by the European Union, that through the Green Deal, aims to be climate neutral in 2050. Thus, from the presentation of the 2030 Climate Target Plan (17th September 1920) to the next provision of the Organic Action Plan of the Green Deal (25th March 2021), environmental issue is the absolute priority to target. Pursuant to Directive 2014/95/EU, large companies must publish annual reports on non-financial information, and boards of directors (BODs) are responsible for approving business models, policies, and their outcomes regarding environmental matters, including key risk and performance indicators. BODs are ultimately responsible for implementing their organisations' strategies, which include developing sustainability plans and allocating resources to sustainable practices (Jizi, 2017). According to the High-Level Expert Group (2018), "business success hinges on executive and non-executive supervisory directors understanding sustainability drivers and being able to translate the risks and opportunities into their business models" (p. 38). According to upper echelons theory (Hambrick and Masson, 1984), the individual attributes of organisations' decision makers are important determinants of companies' behaviours and actions (Hutzschenreuter and Kleindienst, 2006). Defining environmental strategies or, more generally, sustainability strategies, requires that powerful organisational actors' attitudes and priorities be aligned and consistent with

the desired strategies. Without this alignment, sustainability-oriented activities can be "decoupled" or disconnected from firms' core business activities, and prove ineffective. Furthermore, positive attitudes toward environmental protection (EPA) appear to be associated with pro-environmental strategies and firms' adoption and implementation of environmental management practices (Milfont and Duckitt, 2004; Roxas and Coetzer, 2012; Stern, 2000).

Board member beliefs and attitudes thus underpin companies' ability to formulate and implement sustainability initiatives (Goodpaster, 1983; Smith et al, 2010). This suggests that the integration of environmental issues into corporate governance, strategy, and business management may require changes in board composition (Tseng et al., 2020). Firms should appoint new talents with higher awareness of and stronger attitudes towards environmental topics.

The question remains of how these environmental attitudes can be detected in candidates for directorship.

Previous literature finds that these important attitudes are often hard to explore and their antecedents are typically kept in a "black-box" (Post, 2011; Thoradeniya et al., 2017, Aguinis & Glavas, 2012).

Many previous studies have investigated the impacts of BOD characteristics on companies' environmental and sustainability performance. Regarding board composition, the percentage of female, independent, or outside directors and their characteristics and backgrounds can influence boards' decisions and sustainability commitment (Cucari et al., 2018; Frias-Aceituno et al., 2013; Post et al., 2011; Gerged, 2021; Nadeem et al., 2020; Tingbani et al., 2020; Pan et al., 2020) and drive environmental (De Villiers et al., 2011) and sustainability performance (Chams and García-Blandón, 2019). However, the number of studies looking at individual attributes linked to sustainability practices is limited (Aguinis & Glavas, 2012). Even fewer studies have investigated individual organizational leaders' EPAs. The EPAs and their socio-demographic and psychological determinants have been studied in relation to some categories of organizational actors: Chief Executive Officers (CEOs), managers, employees, and potential "future managers" (i.e. students)

(Konadu et al., 2020; Bhattacharyya et al., 2020), but never in relation to board directors. Our study aims to fill this gap by investigating directors' individual attributes which may predict stronger EPAs, in order to profile those individuals and positions which could favour environment-oriented behaviours.

In addition to conventional socio-demographic characteristics, our research includes other observable governance and context variables which appear to affect EPAs. In light of the leadership role assigned by the European Commission (2018) to the financial sector for promoting sustainability and mitigating environmental risk, we also investigate the combined effect of sector (i.e., the sector of the company in which individuals serve as board members) and certain individual director characteristics on their EPA.

In fact, even if the financial sector traditionally has been considered to be less involved in sustainability issues because it has a low direct environmental impact, especially in comparison to industrial sectors, such as the chemical, petroleum, and paper industries (Matute-Valalle et al, 2011; Thompson and Cowton, 2004), the relevance given by the European Institutions to the financial sector (and in particular banking one) is growing more and more. Banks are fundamental actors in influencing the behavior of companies and final consumers, thus actively contributing to the achievement of the desired objectives.

Although no specific paradigm informs our research, because no previous study has investigated the antecedents of EPAs of a board director, various theoretical frameworks have been applied. Unlike corporate governance research studies (eg, Barako et al., 2006; Giannarakis, 2014; Shaukat et al., 2016), which have largey relied on a single theory perspective to investigate the relationships between corporate governance mechanisms and sustainability, the present study adopts a multitheoretical perspective. It in fact refers to agency, resource dependency, stakeholder, and upper echelons theories to identify individual attributes of board directors which could affect their EPA.

The research analyses data obtained from a survey on 184 Italian board members, using an ordinary least squares (OLS) regression to test the relationship between individual attributes and EPA.

The choice to focus on a single country comes from the consideration that attitudes could be influenced by various external factors: local environmental conditions and local economic conditions may play a crucial role in forming attitudes regarding the environment, along with pro-environmental behavior (Uzzell, 2000; Cicatiello et al., 2020). Hence, focusing on directors who operate in the same country, in which the external context is homogeneous (with a prevailing religion, regulation on environmental protection, pressure and sensitivity of stakeholders) is necessary to avoid a possible bias driven by the heterogeneity at the national level and to focus on the differences in individual attributes.

According to research by the Bank of Italy, the effects of climate change in Europe are expected to affect mainly countries in the southern regions, such as Italy. In the main climatological scenarios, Italy is significantly exposed to climate and environmental risks and, in particular, to hydrogeological risk. It is the country in Europe most exposed to damage from river flooding (Faiella et al., 2018). The high level of risk makes environmental protection increasingly important in Italy. Local policymakers are putting considerable effort into promoting pro-environmental behavior and fostering sustainable development. National government has also allocated funding to environmental protection, and provides incentives to companies in the form of subsidies and tax exemptions and reductions (for example, recently, “Legge di Bilancio 2021”, 30 dicembre 2020, which indicates the investment in environmental protection at 5 billion).

The ability of companies to collaborate with governments in pursuing environmental protection goals is critical and, consequently, the search for “green” directors is of utmost importance. In this sense and for the previous reasons, Italy is an interesting case study.

The next section reviews and discusses the existing literature on the influence of an individual’s characteristics on EPA. Section 3 describes the research methodology and the sample,

while results are presented in Section 4. In Section 5 we discuss findings, implications and possible avenues for future research. The final section contains some concluding remarks.

2. THEORETICAL BACKGROUND AND HYPOTHESES

2.1 Role of Board Directors and EPAs

Environmental costs and risks increase over time. The World Economic Forum's "Global Risks Report 2020", for the first time in the history of the Global Risks Perception Survey, indicates that environmental concerns dominate the top long-term risks ranked by likelihood. Three of the top five risks, ranked according to severity, are also linked to environmental changes. On the one hand, poor environmental performance can expose companies to fines, regulatory risk, reputational damage, lawsuits, and high operating costs. On the other hand, firms with strong environmental performance can reduce these costs, improve access to resources, reduce employee turnover, and take advantage of market opportunities created by the increased demand for environment-friendly goods and services (Berrone and Gomez-Mejia, 2009; De Villiers, 2011).

In this context, boards play various key roles (Hillman and Dalziel, 2003) which can be identified in different theoretical perspectives. First, directors monitor management to ensure that they act in the shareholders' interest (i.e., agency theory). Second, board members facilitate access to information and other resources (i.e., resource dependence theory). Last, directors pay attention to stakeholders' interests including those of employees, creditors, customers, suppliers, and local communities, thereby enhancing firms' social legitimacy (i.e., stakeholder theory). Because of growing concerns about the natural environment and related risks, and also strategic opportunities, boards are increasingly required to address environmental strategies (Kassinis and Vafeas, 2002). But although environmental protection is increasingly at the top of boards' agendas, effective environmental strategies require that powerful actors' attitudes be aligned and consistent with the defined strategies.

An “attitude” is the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question. According to Ajzen (1991), a positive attitude towards environment protection indicates a subjective disposition in favour of environmental protection based on thoughts and feelings about it. The Theory of Planned Behavior (Ajzen, 1991) postulates that the attitude toward the behavior is one out of three main determinants (with social norms and the perceived behavioral control) influencing individuals’ intention to perform a given behaviour. Next, the environmental attitudes have been studied, and also criticized a lot as weak predictors: research moved to more inclusive analysis of human belief systems, like worldviews, value-orientations, an holistic conceptual model of the intention behavior gap of ethically minded consumers (Carrington et al., 2010) and the role of change agents (van der Berg et al., 2019) .

Other studies have highlighted the importance of EPA in underpinning good environmental performance. Firms led by owner-managers with stronger EPA are more likely to widely adopt and implement environmental management practices (Milfont and Duckitt, 2004; Stern, 2000) and focus on natural environment issues (Dibrell et al., 2011). They also show a more marked orientation towards environmental sustainability (Roxas and Coetzer, 2012).

To date, few empirical and theoretical studies have attempted to explain attitudes towards environmental protection in different contexts, but the topic is gradually attracting more attention. In the same way, research on attitudes towards sustainability—including environmental protection, financial profitability and social responsibility—and corporate social responsibility (CSR)—a concept closely relating to sustainability (see Montiel, 2008)—has been sporadic, but is gradually increasing today. However, most studies have analysed socio-demographic and psychological determinants of these attitudes. Variables such as gender, age, nationality, and type and level of education have proved to be potentially important in explaining attitudes, but their relative effects often produce conflicting empirical results. Most prior studies have examined employees, managers, CEOs, and potential future managers’ attitudes towards CSR. These attitudes have also been explored by extending the research to include consumers and supply chains, but this perspective is

unrelated to the purpose of our study. Research investigating students' attitudes towards sustainability makes up the largest proportion of the literature, thanks to the ease of collecting large data sets on this type of population, but previous findings have limited generalisability in terms of workplaces. Among students, however, gender and age appear to be the most important socio-demographic determinants of EPA (Arlow, 1991; Haski-Leventhal et al., 2017).

Many studies have also investigated firms' orientation towards the natural environment (Banerjee, 2002; Menguc and Ozanne, 2005), but few researchers have concurrently investigated individual organisational actors' attitudes. Suchman's (1995) findings indicate that regulatory, normative, or cognitive pressures can encourage leaders to react to social or environmental issues. Roxas and Coetzer (2012) confirm the effect of these three contextual factors on organisational leaders' attitudes towards the environment.

Other researchers have suggested that rising consumer demand for CSR is helping to change managerial attitudes towards the natural environment (Maignan and Ferrell, 2004) and that these changing attitudes are related to firms' higher financial performance (Dibrell and Craig, 2006; Russo and Fouts, 1997). Ataei et al. (2019) investigated the EPA of employees of agricultural knowledge-based companies based on sociocultural variables. They found that various factors affect employees' attitudes towards environmental protection: public policies, mass media, membership of non-governmental organisations, educational level, and training.

As for psychological determinants, materialism, spirituality, religiosity, idealism and relativism are some of the variables considered to be the most important antecedents of CSR attitudes (Ajzen, 1991, Kolodinsky et al., 2010, Tandon, 2011, Mazereeuw et al., 2014, Carretta et al., 2012). However, personality traits or psychological characteristics are not directly observable variables and therefore are not suitable for managerial or policy-making purposes.

Like much previous research on EPA, and behavioral research in management, such as upper echelons research, our study first considers socio-demographic characteristics such as gender, age, educational background, and knowledge (here defined as training in sustainability development

issues). In addition to socio-demographic variables, we also investigate a few specific characteristics of our target population including years of board experience, number of directorships, role (i.e., executive or non-executive and independent board member), and board committee membership, which are variables reflecting governance. These variables are usually used in studies on corporate governance and in the stream of research investigating the relationship between the features of the board as a collegial body and the firm's sustainable performance. However, these studies refer to the direct impact of boards (as collegial bodies) on corporate social responsibility at the company level. To the best of our knowledge, these governance variables have never previously been studied with regard to the attitudes (or attributes) of individual directors. Moreover, they are easily observable and hence also very useful in predicting the individual orientation towards sustainability goals. Lastly, we test two context variables – company-served size and sector – and we explore their relationship with the EPA of board directors. Figure 1 summarizes the conceptual framework. Since no previous study has assessed the relationship between these attributes of directors and their EPA, the hypotheses were formulated with reference to the literature on the relationship between board characteristics and other environmental issues.

Figure 1. Conceptual framework of the research

2.2 Socio-demographic characteristics

Ajzen (2011) states that background factors, such as age, gender, and education, can influence people's beliefs. Previous studies have demonstrated that overall women require higher levels of sustainability (Calabrese et al., 2016; Rosati et al., 2018). A higher percentage of female board directors is associated with a stronger commitment to environmental issues (see Fernandez-Feijoo et al., 2014; Johnson and Greening, 1999; Williams, 2003). Glass et al. (2016)

show that women consistently encourage the development, implementation, and reports on the results of policies on energy efficiency, green building, and climate change in order to improve shareholders' social welfare (Jizi, 2017). Liu et al. (2020) show that female directors promote environmental responsibility as a strategic choice. Hence, we formulate the following as our first hypothesis.

Hypothesis (H1). EPAs are stronger if a director is female

Regarding effect of age on EPA, the literature provides conflicting evidence (Cucari et al., 2018; Post et al., 2011). On the one hand, researchers have found that older individuals, like females, tend towards a higher degree of moral reasoning and environmental consciousness than younger people (Forte, 2004). On the other hand, many studies have also found that younger individuals exhibit more concern about the environment (Forte, 2004) and that they are more aware of environmental issues (Diamantopoulos et al., 2003) than older people (Post, 2011). Hence, we formulate the following hypothesis:

Hypothesis (H2). EPAs are stronger if a director is younger

Education is clearly an important determinant of EPA. The nature and type of education (e.g., business, science, law, or engineering) shapes individuals' views, skills, and ways of thinking about and taking a stand on issues when making decisions. Upper echelons research often uses educational background as a proxy for the individualized lenses of executives, and specifically to explain their beliefs (Hafenbrädl and Waeger, 2017). Degrees such as business administration, finance, or economics have also been considered influential, and they tend to lead individuals to take a somewhat similar approach to decision-making. We therefore consider an educational background in business administration, finance, or economics in comparison with other fields (law,

engeenering, sociology etc.). Geletkanycz and Black (2001) state that business students develop cost-benefit thinking and that executives with a Master of Business Administration (MBA) may be more competent in strategic decision-making. Thus, they can be said to have a greater capacity for understanding and taking advantage of opportunities that increase their firm's value.

Godos et al. (2015) found that business education, in comparison with other degrees, can affect the ways in which stakeholders' interests are considered and moral judgments are made. The authors demonstrate that business students tend to show a more instrumental and less regulatory stakeholder management orientation than their non-business counterparts. Graham and Harvey (2001), for example, find that Chief Financial Officers with MBAs use more advanced valuation techniques than those without MBAs. Lewis et al. (2014) suggest that chief executives with MBAs are more likely to perceive voluntary disclosure of environmental policies as an opportunity to boost their firm's image and environmental legitimacy.

Some studies have also highlighted that degrees in economics, MBAs, or legal specialisations have a negative relationship with CSR (Manner, 2010; Slater and Dixon-Fowler, 2010) because they focus more on profits and self-interest compared to humanities degrees. Although there is no agreement in previous research on this, we assume for the purposes of this study that directors with a background in business administration, finance, or economics, compared to others, perceive environmental protection positively. Such people most likely see this as an opportunity to enhance their company's reputation and environmental legitimacy (Bansal and Clelland, 2004) and assess positively the link between environmental protection and other firm performance indicators. We thus test the following hypothesis:

Hypothesis (H3). EPAs are stronger if a director has a business administration, finance or economics background

Training in environmental issues generates more awareness, and at the same time improves directors' skills and expertise.

Monaghan and Cervero (2006) state that education helps people's attitudes, and can shift their values and improve their behaviour. Sobczak et al., (2006) and Wycherley (1997) also support the need for training to enhance the environmental knowledge and management skills of managers and other workers participating in efforts to improve their company's environmental performance. Barr (2007) further identifies environmental values, knowledge, and concern-based variables as among the most important factors influencing EPA and associated behaviours. The following hypothesis is thus formulated:

Hypothesis (H4). EPAs are stronger if director's knowledge about environmental issues is higher

2.3 Governance characteristics

Board members with multiple directorships (i.e., a higher number of board seats) have, on average, more knowledge and expertise about environmental issues and their impacts because firms tend to differ in the extent and types of environmental initiatives. Directors with multiple board seats benefit from broader social networks, which makes these actors valuable resources (De Villiers, 2011). Del Vecchio (2010) confirms that board interlocks are a way for directors to acquire knowledge and skills.

Other scholars demonstrate that multiple directorship is correlated with greater firm growth (Kor and Sundaramurthy, 2009) and fewer lawsuits for environmental breaches (Kassinis and Vafeas, 2002). Ortiz-de-Mandojana and Aragon-Correa (2015) additionally suggest that interlocking directorates can have a positive effect on some organisational outcomes such as environmental performance. On the basis of these findings, we put forward the following hypothesis:

Hypothesis (H5). EPAs are stronger if a director has multiple directorships

Some authors have highlighted that more professional experience (e.g., years of sitting on boards) enhances human and social capital. Long-term directors are thus in a position to provide better guidance and counsel to firms (Hillman and Dalziel, 2003; Pfeffer and Salancik, 1978). More experience increases directors' exposure to a wider range of strategic and governance issues, including environmental practices and performance. Vance (1983) states that coercing directors into retirement leads to a loss of talent and expertise and, therefore, of resources. In the present study, we postulate the following:

Hypothesis (H6). EPAs are stronger if a director has more experience

Independent directors' values, knowledge, awareness, and experience of environmental issues can influence their EPA (Kassinis and Vafeas, 2002). Agency theory focuses on the need to monitor management decisions in order to avoid a lack of alignment between management interests and shareholders' long-term interests. Since sustainability initiatives' cost can be high in the short term and benefits can be seen only in the long run (Kassinis and Vafeas, 2002), opportunistic managers are unlikely to favour these initiatives. Independent directors overall appear to be less attached to economic performance (Ibrahim and Angelidis, 1995), and more oriented towards a medium long-term vision, which may facilitate their commitment to environment-friendly activities and CSR (Ibrahim et al., 2003; Webb, 2004). For this reason, outsiders and independent directors can be more eager to pursue firms' long-term success, and the presence of these individual is positively related to CSR (Harjoto and Jo, 2011; Johnson and Greening, 1999).

Stakeholder theory (Freeman, 1984) acknowledges that companies are accountable not only to shareholders but also to stakeholders, who may influence or be affected by the company's

strategies, policies and actions. Independent directors' strong stakeholder orientation (Ibrahim et al., 2003; Zhang et al., 2013) can enhance the monitoring of critical decision efficiency and promote responsible behaviours (Sánchez et al., 2011).

Boards with more independent directors tend to control external contingencies more effectively (Fernández-Gago et al., 2016). Independent directors are also more likely to be sensitive to social demands (Ibrahim and Angelidis, 1995) and to promote socially responsible corporate behaviours (O'Neill et al., 1989). Post et al. (2011) suggest that outside directors play a wider role in achieving not only financial success but also more sustainable goals.

Independent directors are additionally more likely to monitor environmental issues (De Villiers et al., 2011). Stakeholder pressure and their own independence of mind make them more conscious of how environmental behaviours improve firms' standing with constituencies such as investors, governments, and lenders (Johnson and Greening, 1999). Independent directors are also more aware of the value generated by environmental performance. According to legitimacy theory, the positive attitude of independent directors towards environmental protection can be explained by their awareness of companies' improved image when they implement environment-friendly policies (Oliver, 1991). On the basis of this evidence, we formulate the following hypothesis:

Hypothesis (H7). EPAs are stronger if a director is independent

In listed companies and financial firms, independent directors are usually members of board committees in charge of remuneration, nomination, and risk and control issues. Although corporate governance codes suggest companies should set up a specific committee for sustainability, some firms prefer to invest risk committees or control and risk committees (CRCs) with special responsibilities regarding Environmental Social and Governance (ESG) issues (CONSOB, 2018 and 2019). CRCs support the board by defining and approving risk appetite and forward-looking risk policies, which can include environmental risks. On the basis of Ajzen's theory (Ajzen and

Fishbein, 1980), we suggest that in the context of EPA, if the director believes that engaging in environmental protection could prevent environmental risk (Australia, 2017), he is likely to hold stonger EPA.

Given these findings, we test the following hypothesis:

Hypothesis (H8). EPAs are stronger if a director is member of a CRC

2.4 Context characteristics

Larger companies face greater stakeholder pressure (Hackston and Milne, 1996), and they are more likely to recognise environmental concerns as a management priority (Al-Tuwaijri et al., 2004; Clarkson et al., 2008). According to Cowen et al. (1987), larger firms tend to have a greater environmental impact, so their boards correctly take higher responsibility for environmental issues than those of small firms do. Therefore, we assume that firm size plays a role in explaining directors' EPA, as shown by the following hypothesis:

Hypothesis (H9). EPAs are stronger if the size of company served by a director is larger

Many studies of environmental or sustainability performance have included company sector as a control variable to capture the potential effects of differences in market structure, technologies, regulations, and environmental impacts (Brammer and Pavelin, 2008; Lewis, 2014; Mazereeuw-van et al., 2014; Post et al., 2011; Rosati and Faria, 2019). Unlike actively polluting sectors, financial activities have no negative effect on the environment and society through direct emissions or resource use. Traditionally, environmental issues and environmental protection initiatives have not especially worried financial company boards. This observation is confirmed by

Furrer, Hamprecht, and Hoffman (2012), who report an absence of bank policies on climate change. Thus, we postulate the following:

Hypothesis (H10). EPAs are stronger if the company served by a director operates in non-financial sector

While earlier studies found that the financial sector had low environmental performance (Cerin and Dobers, 2001), Weber et al. (2014) state that, in recent years, the sector appears to have strengthened its performance in this area and taken measures towards greater environmental sustainability[1]. Environmental regulations, moreover, have been introduced in the United States and Europe which imply that lenders are liable for their debtors' environmental pollution. These measures have increased lender awareness of the risks and opportunities relating to environmental issues, stakeholder pressure, and consequent reputational risk (Crane et al., 2008; Evangelinos and Nikolaou, 2009), driving the financial sector to move in a more sustainable direction.

More recently, the European Commission (2018) has also attributed this sector with leadership in promoting low-carbon economies and sustainable development. In fact, through lending activities and credit risk management, financial companies can affect borrowers and activate a process in which screening, monitoring and enforcement stages are directed towards sustainable development goals. On September 12th, 2019, European regulators (Joint Committee, 2019) published a report suggesting that financial companies need to incorporate ESG risks and, in particular, climate-change risks, into their risk governance framework. Potential changes include the inclusion of ESG risks in the Supervisory Review Evaluation Process—including wider Second Pillar considerations such as risk management and stress tests—and financial firms' reports related to Third Pillar disclosure.

[1] Environmental sustainability is defined as responsible interaction with the environment to avoid depletion or degradation of natural resources and allow for long-term environmental quality.

The European Central Bank (ECB, 2020) asks boards of financial companies to take into account climate and environmental risks in corporate strategy, business objectives, and risk management systems, and to oversee climate and environmental risks more effectively. Economic losses deriving from increases in the intensity and frequency of climatic phenomena extremes (physical risk) and the significant reduction in the value of real and financial assets associated with the exploitation of fossil sources (transition risk) are relevant to the financial system as they can reduce the ability of households and businesses to meet their obligations, even following one decrease in the value of assets pledged to guarantee loans. The financial system, due to its centrality in the economy, is particularly exposed to such risks. Its role as a intermediary of savings and investments of businesses and households makes it potentially able to amplify the negative consequences of adverse events related to climate change and the green transition. Climate risks can affect the soundness of individual intermediaries and the stability of the financial system, or interfere with monetary policy transmission channels and price stability. Climate risk is thus a new and non-traditional risk to be managed by financial institutions, so we expect that younger directors and directors who sit on bank risk committee members will pay closer attention to it.

In the light of the previous findings, we include two final hypotheses:

Hypothesis (H11). In the financial sector, compared to the non-financial sector, EPAs are stronger if a director is younger.

Hypothesis (H12). In the financial sector, compared to the non-financial sector, EPAs are stronger if a director is a member of the CRC

3. MATERIALS AND METHODS

The following section presents the methodological framework of our study, including the research design, sample and questionnaire, and a description of the dependent and independent variables.

3.1 Research design

The research consists of three main steps. First, we developed the questionnaire to collect empirical data in order to examine individual attributes and the EPA of board members. Second, we used different procedures to address potential concerns on common methods and source biases: Exploratory Factor Analysis (EFA), reliability, convergent validity and discriminant validity, and confirmatory factor analysis (CFA) of the construct. Finally, we performed an OLS regression to test our hypotheses.

3.2 Sample and questionnaire

We developed a questionnaire to collect empirical data on explanatory and dependent variables (EPA), and pre-tested it with five directors who are members of Nedcommunity (i.e., the Italian Association of Non-Executive Directors), in order to reduce the risk of different interpretations of questions by participants. We added this short questionnaire into a larger questionnaire designed and validated by Nedcommunity and Methodos, a consultancy firm, in the context of a broad research programme aimed at investigating the relationship between board leadership and sustainability. The entire questionnaire was distributed online between May and June 2019. It was uploaded onto an online platform and sent as a link in an e-mail, together with detailed instructions for completing the questionnaire. Reminders were sent every 15 days. Respondent anonymity was guaranteed. In the first phase, we collected 72 completed questionnaires from the 700 Nedcommunity associates contacted. In the second phase, carried out between September and October 2019, we submitted only the questions of direct interest to this study to a selected mailing

list of directors. A further 112 answers were collected, with a total response rate of 26 percent. This rate compares favourably to previous research on BODs (Minichilli et al., 2012; Silvius and De Graaf, 2019; Bechini et al., 2020). The final dataset used in this study included responses from 184 Italian board members. The completed questionnaires contained no missing values as all responses were mandatory. The sample composition is shown in Table I.

Table I: Sample description

Of the 184 respondents, 48 percent were male and 52 percent female. In terms of age, 57 percent were under 60, and 43 percent over 60. Regarding governance variables, 56 percent of the respondents were non-executive and independent directors. In addition, 56 percent of respondents were members of CRCs.

3.3 Dependent variables

Environmental attitudes were measured by a five item scale based on the work of Klassen (2001) and subsequently used by Dibrell and Craig (2006, 2011), Pagel and Gobeli (2009) and Roxas and Coetzer (2012). This scale was selected rather than, for example, Sutton and Gyuris (2015), because it refers to strategic policies relating to the natural environment.

Items measure the attitudinal propensity of the company director to allocating firm resources to business initiatives aimed at protecting the natural environment (Dibrell et al., 2011). Respondents were asked to indicate their agreement with each of the items on a 7 point Likert scale (strongly disagree = 1 to strongly agree = 7). A higher composite score indicates that the director has a strong positive attitude toward the natural environment (Dibrell et al., 2011).

An initial confirmatory factor analysis (CFA) model was built on the five items, which were extracted from the Exploratory Factor Analysis (EFA). The five items scale (Klassen, 2001) to assess personal managerial attitudes about the allocation of resources between business and the environment is the following:

1) Businesses need to spend more money on environmental protection.
2) Resources should not be devoted to environmental protection because a firm's profitability will be harmed.
3) In the future, environmental protection should be seen as part of a firm's ''bottom line.''
4) Business leaders ought to be leading environmental protection efforts.
5) We must protect the environment even if it means that jobs in our community will be lost.

.Subsequently, the five items of the initial construct were reduced to four and were found to meet the benchmark model fit criteria. The results of the confirmatory factor analysis using maximum likelihood estimation are reported in Table II. The model was tested for reliability, convergent validity and discriminant validity. As shown in Table II, the values obtained for Cronbach's α (>0.7) and the average variance extracted from the dependent variables (AVE>0.5) show, respectively, internal consistency reliability and convergent validity (Fornell and Larcker 1981) of the variables included in the survey. Due to the sensitivity of Cronbach's α to the number of measures in a construct, composite reliabilities (0.7<CR>0.9) (Nunnally and Bernstein, 1994) of the variables are also included in Table II, and these confirm the reliability of the survey items. Additionally, discriminant validity of the variables was recognized by the AVE of each pair of dependent variables being greater than their squared correlation. The results of the confirmatory factor analysis show a good fit of the model (Byrne, 2013).

Table II. Confirmatory factor analysis: dimensions of EPA

3.4 Independent variables

We used three sets of variables to examine how EPA is affected by directors' individual attributes. The first set consisted of socio-demographic variables and included gender, age, background, and knowledge. The second set of variables considered the role played in the boardroom (i.e., independence and CRC membership) and the experience gained through multiple directorships and years of experience as a board member. The third set of variables comprised context variables such as firm size (i.e., number of employees) and sector. We used a stepwise regression method to select the set of predictors having the best relationship with the dependent variable. Table III provides a detailed description of the explanatory variables included in the study.

Table III. Description of variables

3.5 The model

An OLS regression model is used to test the hypotheses formulated in Section 2. This method is considered an appropriate analytical tool when the outcome variable is continuous. The underlying assumptions of multiple regression were tested before finalising the proposed statistical model. We checked for linear relationships between independent and dependent variables and homoscedasticity, by plotting standardized residuals as a function of standardized predicted values, which yielded no abnormalities. A Durbin-Watson test and variance inflation factors indicated no problems with multicollinearity. To statistically test our research hypotheses, we selected Equation 1 for the OLS regression.

$$\textbf{Attitude Toward Enviroment} = \alpha + \beta_1 \textbf{gender} + \beta_2 \textbf{age} + \beta_3 \textbf{background\_fin} + \beta_4 \textbf{sdknowledge} + \beta_5 \textbf{experience} + \beta_6 \textbf{n\_board seats} + \beta_7 \textbf{independence} + \beta_8 \textbf{crc} -$$

$$\mathbf{crcmembership} + \beta_9\mathbf{n\_employees} + \beta_{10}\mathbf{sector} + \beta_{11}\mathbf{age} * \mathbf{sector} + \beta_{12}\mathbf{crc} - \mathbf{membership} * \mathbf{sector} + \varepsilon \quad [1]$$

4. RESULTS AND DISCUSSION

4.1 Results

This section presents the findings on board directors' levels of EPA and examines statistical significance of all explanatory variables. The results show that board members have, on average, a strong EPA; the mean is 5.7 on a scale of 1 to 7 and the variance is low (0.95).

The bivariate Pearson correlations between the variables were calculated. Figure 2 displays the numerical values' minimum, maximum, and mean values and standard deviations. As expected, most independent variables are significantly and positively correlated with the directors' EPA.

Figure 2. Descriptive statistics and correlation coefficients

Regression analyses were then conducted of the relationships between explanatory variables and directors' EPA. The OLS estimation's results are shown in Table IV.

Table IV. OLS regression: Board Directors' EPA

In Model 1, the dependent variable was regressed on the socio-demographic variables. In Model 2, it was regressed on both the socio-demographic and governance variables. Finally, in Model 3, the dependent variable was regressed also on the context variables. Our full model explains 26% of variation of EPA, and the F value underlines the overall significance of coefficients. Overall, the results confirm the models' relevance, showing statistically significant relationships between various independent variables and the dependent variable.

Regarding the socio-demographic predictors, the analyses generated significant regression coefficients for gender and background. In particular, a positive and significant relationship (i.e., at a confidence level of 99%) exists between women directors and the dependent variable (b = 0.573; $p < 0.01$). This result confirms hypothesis H1.

However, EPA is not significantly related to age, so hypothesis H2 is not supported by the data.

The analyses also revealed a positive effect on the dependent variable for directors with a background in business administration, finance or economics (b = 0.381; $p < 0.01$), indicating that these board members are associated with stronger EPA. This result confirms hypothesis H3

In contrast, EPA is not significantly linked to directors' specific knowledge, contradicting hypothesis H4.

Concerning governance variables, the results suggest that directors with longer experience and multiple directorships do not express stronger EPA. Hypotheses H5 and H6 are not supported by the data.

Our results include positive and significant parameter estimates for independent directors, which provide strong support for hypothesis H7. As predicted by agency theory, this result confirms the positive effect of director independence (b = 0.358; $p < 0.05$) on the dependent variable, suggesting that independent directors express stronger EPA. The dependent variable is, however, insignificantly related to CRC membership, so hypothesis H8 is not supported.

Regarding the context variables, the results reveal that firm size is not significantly related to EPA, and thus hypothesis H9 is not confirmed, consistently with some prior studies (Mazereeuw et al., 2014). Company sector is, however, significantly connected with the dependent variable (b = -1.154; $p < 0.01$), which demonstrates that sector affects directors' EPA. Consistently with hypothesis H10, non-financial companies' directors exhibit stronger EPA than those serving on boards of financial companies, but the opposite is the case for younger directors and CRC members.

Concerning the interactions between sector and age and between sector and CRC membership, the analyses showed, with a 99 percent level of confidence, that director's age and CRC membership are significantly related to EPA, depending on the sector. If directors serve on the board of a financial company, age is significantly and negatively related to EPA. In other words, if a director is under 60 years old and serves on a financial firm board, this individual's EPA increases by an estimated 0.549 points. The difference in the effect of age on EPA between directors belonging to financial and non-financial sectors is 0.789 ($p < 0.01$).

Similarly, if a director serves on the board of a financial company, a positive relationship exists between this board member's CRC membership and EPA. If a director is a member of the CRC and serves on the board of a financial company, the director's EPA increases by an estimated 0.757 points. The difference in the effect of CRC membership on EPA between directors belonging to the financial and non-financial sectors is 1.048 ($p < 0.01$). These results are consistent with hypotheses H11 and H12.

Overall, these findings provide strong evidence that board director characteristics have an impact on their EPA, which in turn impacts on a board's ability to monitor and promote better environmental practices in their firm.

4.2. Discussion of results

Our study is exploratory in nature, as there is no previous EPA research on the specific unit of analysis. This excludes the possibility of a comparison of our results with previous studies. Drawing on evidence of demographic differences in environmental attitudes, we expected to find stronger EPA among directors of female gender, younger, with business administration, finance or economics background and with more knowledge about environmental issues. Consistently with the findings of previous studies, (Fernandez-Feijoo et al., 2014; Johnson and Greening, 1999; Williams, 2003), our results suggest that female directors tend to have a stronger EPA. Furthermore,

consistently with Geletkanycz and Black (2001), Godos et al. (2015) and Lewis et al. (2014), directors with business administration, finance or economics backgrounds would appear to be more likely to understand and assess issues relating to the environment. The explanation, supported by extant literature, could be that these financial expert directors are rational actors, who apply cost–benefit calculi and believe that actions to protect the environment are worthwhile. Finally, consistently with agency theory and stakeholder theory, independent directors would seem associated with stronger EPA, suggesting that these directors may help the firm build environmental credibility, by encouraging the pursuit of long-term goals, or firm participation in government initiatives to improve environmental practices.

However, in general, it is surprising that certain variables considered important in explaining EPA in other categories of actors would seem to not affect the EPA of directors.

Contrary to expectations and the existing literature (Forte, 2004, Diamantopoulos et al., 2003, Post, 2011, Ataei et al., 2019; Monaghan and Cervero, 2006, Whatley, 2009; Barr, 2007), age and knowledge of environmental issues do not appear to influence board members' EPA. Clearly, future studies could verify whether this evidence holds across different models of sampling and data collection.

Another unexpected result, which conficts with the tenets of dependence resource theory, is the low significance of experience, as measured by the number of years in the role of director and by multiple directorship, both indisputable sources of expertise. A possible explanation is that long-tenured directors are more familiar with traditional governance practices, and thus they experience the new challenges related to environmental protection, and the responsibilities it brings, as an onerous additional responsibility that goes beyond the logic of more traditional management paradigms. The perception of having less time to commit to other board work could be stronger for "busy directors" (Kress, 2018; Ferris et al., 2003). These effects could offset the positive effect of knowledge and expertise in environmental issues and related impacts on EPA.

Furthermore, contrary to our expectations, membership of the risk committee does not seem to affect EPA. However, the relationships between age and EPA, and CRC membership and EPA, gain statistical significance when the financial sector is considered in comparison with others. The first relationship supports the argument that in the financial sector environmental protection is perceived as a new and not traditional issue, and that "older" directors are less informed and concerned about it. The second relationship confirms expectations: the regulatory tightening on environmental and climate risk for the financial sector, and the fact that bank boards are invited to oversee climate and environmental risks more effectively, have increased the awareness of risks and opportunities relating to environmental issues and the usefulness of performing environmental-friendly initiatives, especially for those who are most involved in risk management, i.e. members of the risk committee.

5. CONCLUSIONS

Environmental issues and climate change are becoming increasingly important drivers of business risks and long-term sustainability, and thereby present strategic opportunities as well as threats. Strong attitudes of board members towards environmental protection can foster corporate sustainability initiatives, which begs the question of what in the first place influences board directors' EPA. This study investigated board members' EPA and explored whether individuals' characteristics and specific board roles are associated with more positive EPAs. This study provides the first evidence of drivers of board members' EPAs. More specifically, the results of our research show that directors' socio-demographic attributes and board-related roles can predict their EPA. Our findings suggest that female directors and directors with a background in business administration, finance or economics are more likely to have positive attitudes towards environmental protection. Non-executive and independent board members also appear to be particularly inclined to inspire boards to achieve environmental goals, because of their

independence of mind and greater objectivity in decision-making. In addition, younger board members and risk committee members in financial companies express stronger EPA, confirming that environmental protection is a non-traditional issue for directors in this sector, and also that environmental protection strategy can be an important risk mitigating factor.

Overall, the appointment of "green" directors, i.e. displaying the characteristics identified as significant in this study, could enhance boards' commitment towards environmental sustainability, beyond mere compliance, and help companies capture new business opportunities in sustainable finance. Thus, the main practical implication of our findings is that firms aiming to pursue more effective environmental strategies should appoint board members showing specific characteristics. This strategy could foster changes in board composition and organisation with positive effects on businesses' environmental sustainability.

Our study makes an important contribution to existing literature. It contributes to academic literature in that, by means a multiple-theoretical perspective, it is the first to provide evidence on the relationship between individual characteristics of board members and their attitudes towards environmental protection. While previous research has investigated the effects of collegial board characteristics which can affect firms' processes and outcomes, very few studies focus on the impact of a director's individual characteristics (Aguinis et al., 2012). Our research adds to the existing literature on individual differences in environmental attitudes by examining the effects of socio-demographic, governance and context attributes on EPA of a never previously investigated unit of analysis: the individual board director. We also provide evidence on the effects of context/organizational factors on the relationship between individuals' attributes and attitudes, which may drive future research on the topic. We are aware that our study constitutes only a preliminary step towards understanding the effect of directors' individual attributes on their EPA. The need to limit the number of questions in the survey so as not to compromise the response rate, and the need to avoid large numbers of explanatory variables to prevent phenomena of

overparametrization, obliged us to limit the set of individual attributes investigated. Additional research is needed in the future in order to cover a wider variety of attributes.

From a policy-making point of view, this study may be of interest to regulators and supervisors because we identify attributes of board members which may require oversight, and possible new guidelines, in order to achieve the public policy objectives of environmental protection. Environmental policies require partnership and collaboration to be successful (Bassi et al., 2019) and companies can support environmental policy only if they favor environmental goals. The board of directors is the most important decision-maker body of a company and is ultimately responsible for the implementation of environmental protection initiatives at firm level. For this reason, policy-makers, such as banking regulators and supervisors setting suitability criteria for bank boards, should take into consideration the observable individual attributes of directors. This would result in more likely positive EPA, which would promote effective environmental strategies.

From a corporate governance perspective, our research may be useful for companies and shareholders to improve board design and select board members more oriented toward environmental issues. Shevchenko et al., (2016), highlight if firms are to change in terms of sustainability, it will be because values change, but not because of stakeholder pressure. Firms committed to implementing environmentally sustainable practices should be encouraged to appoint female directors, directors with business administration, finance or economics background, a larger number of independent directors and directors who have previous experience as members of risk committees in financial companies. In addition, our results should be useful for defining the composition of CSR/sustainability or environmental committees which represent virtuous organizational arrangements for green governance (Li et al., 2020).

Moreover, our research suggests that shareholders are well-placed to pursue environmental initiatives by ensuring that firm boards have the characteristics found to be relevant in our study. Likewise, our results also provide institutional investors with important information for their stewardship role.

Our study is a preliminary attempt to advance research on one important driver of decision-making of individual board directors. However, some limitations of our study, which might be addressed in future research, should be noted. First, in order to avoid the risk of overparametrisation the number of explanatory variables was necessarily limited. Second, online survey could be affected by a degree of self-selection bias because the decision to participate in the study is voluntary and may reflect some inherent bias in the characteristics/traits of the participants. For example, who have more experience, sensitiveness or propensity toward the topic are overrepresented in the sample. Third, many explanatory variables were measured by dummy variables and we tested only associations, which do not provide direct evidence of causality. Overcoming these limitations would open up new approaches for further research on the topic. The understanding of the variables which actually guide EPA might be improved by more comprehensive studies. Qualitative study, for instance, could further help explain the determinants of EPA and the relationship between socio-demoghaphic, governance and context variables and the individual attitudes of board members. Additionally, further studies could examine the impact of psychological antecedents of attitudes, such as personality and values. We also recommend that our study be replicated for other countries with different levels of environmental risk.

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Table and Figure

Figure 1. Conceptual framework of the research

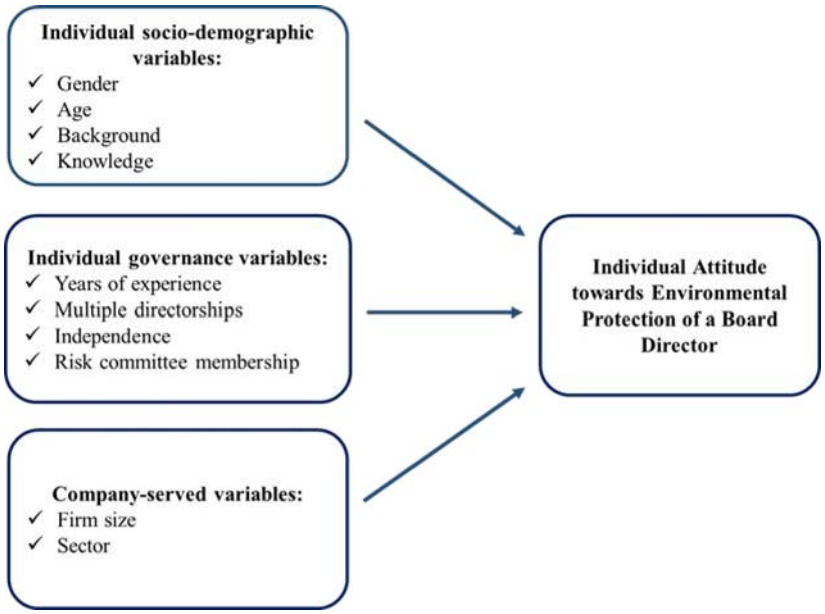

Table I: Sample description

Variable	Statistic methods	Frequency	%
1. Gender	Female	96	52,17
	Male	88	47,83
2. Age	0-60	105	57,07
	+60	79	42,93
7. Business administration, finance or economics background	Financial	104	56,52
	Other	80	43,48
5. Number of Years of Board work experience	> 0 e < 9	112	60,87
	> 9	72	39,13
6. Number of Board seats	1	80	43,48
	>1	104	56,52
3. Directorship Type	Independent directors	104	56,52
	Other	80	43,48
4. Membership Committee	Control and Risk Committee (joint)	103	55,98
	Other	81	44,02
8. Sector	Financial	93	50,54
	Non-financial	91	49,46
Note: n - 184			

Table II. Confirmatory factor analysis: dimensions of EPA

EPA: Construct and corresponding items	Cronbach's α	Composite reliability	AVE	Factor loadings
Values	0,756	0,819	0,533	
(from strongly disagree = 1 to strongly agree = 7)				
1. Companies need to spend more on environmental protection				0,702
2. In the future, environmental protection should be considered part of the business "final result"				0,837
3. Company leaders should be driving environmental protection efforts				0,705
4. We have to protect the environment even if it means that jobs in our communities will be lost				0,664

CFA: ($X^2 = 2{,}679$, df =2, p value >.0,05, CFI = 0.996, GFI =0.993, SRMR = 0.022, RMSEA = 0.043, TLI = 0,989, IFN = 0.986)

Table III. Description of variables

Explanatory Variable	**Description**
gender	Binary variable assuming the value 1 to indicate female and 0 to indicate male
age	Binary variable assuming the value 1 to indicate the respondent is less than 60 years old, otherwise 0
background_bafe	Binary variable assuming the value 1 to indicate that the respondent had a business administration, finance and economics background , otherwise 0
sdknowledge	Frequency of attending to training/updating initiatives on sustainable development issues (from 1-never to 5-very often)
experience	Binary variable assuming the value 1 to indicate if the respondent has less than 9 years of experience like as Board Directors, otherwise 0
n_board seats	Binary variable assuming the value 1 to indicate if the respondent had multiple directorship and 0 to indicate if the respondent had one only directorship
independence	Binary variable assuming the value 1 to indicate that the respondent was non executive independent director, otherwise 0
crc-membership	Binary variable assuming the value 1 to indicate that the respondent was member of Control&Risk Committe or Risk Committee and 0 otherwise
n_employees	Natural logarithm of number of employees
sector	Binary variable assuming the value 1 to indicate that the respondent belongs to Board of a financial company and 0 to indicate that the respondent belong to a Board of a non-financial company

Figure 2. Descriptive statistics and correlation coefficients

		Mean	Dev. Std.	N	1	2	3	4	5	6	7	8	9	10	11
1	gender	0,52	0,50	184	1										
2	age	0,57	0,50	184	,181**	1									
3	background_bafe	0,57	0,50	184	-,115	-0,118	1								
4	sdknowledge	3,91	0,95	184	0,095	0,117	,024	1							
5	experience	0,61	0,49	184	,302**	0,069	-,052	-0,026	1						
6	n_board seats	0,57	0,50	184	,038	,081	,049	,335**	-,254**	1					
7	independence	0,57	0,50	184	,126*	0,059	,160*	,242**	,061	,027	1				
8	crcmembership	0,56	0,50	184	,159*	,182**	,150*	,092	-,128*	,150*	,194**	1			
9	n_employees	2,92	0,92	184	,195**	,170*	-0,101	-0,011	-,057	0,019	-,047	,209**	1		
10	sector	0,51	0,50	184	-,251**	-,177**	,273**	-,193**	-0,036	-,034	,185**	0,00	-,126*	1	
11	enviatt	5,70	0,95	184	,344**	,136*	,109	,054	,127*	-,016	,204**	,227**	0,075	-0,057	1

Note: n = 184;
***p < 0.01; *p < 0.05.*

Table IV. OLS regression: Board Directors' EPA

Variable	**Model 1 (n - 184)**	**Model 2 (n - 184)**	**Model 3 (n - 184)**
gender	0,655*** (0,133)	0,570*** (0,142)	0,573*** (0,138)
age	0,175 (0,135)	0,125 (0,136)	-0,240 (0,193)
background_bafe	0,304* (0,133)	0,222 (0,136)	0,381*** (0,133)
sdknowledge	0,006 (0,069)	-0,009 (0,074)	-0,014 (0,071)
experience		0,069 (0,147)	0,019 (0,138)
n_board seats		-0,095 (0,145)	0,033 (0,137)
independence		0,226 (0,139)	0,358** (0,136)
crc-membership		0,266* (0,141)	-0,291 (0,198)
n_employees			-0,033 (0,070)
sector			-1,154*** (0,244)
sector x age			0,789*** (0,002)
sector x crc-membership			1,048*** (0,000)
Intercept	5,058***	4,972***	5,495***
R-squared	0,149	0,185	0,306
Adj-R-squared	0,130	0,148	0,258
ΔR-squared		0,036	0,121
F-value	7,836***	4,985***	6,291***

Variable	**Model 1 (n - 184)**	**Model 2 (n - 184)**	**Model 3 (n - 184)**
Durbin-Watson	1,965	2,048	2,028
Notes: *$p<0.10$; **$p<0.05$; ***$p<0.01$			
Note: n - 184			