ECONOMIC FREEDOM, INTERNAL MOTIVATIONS, AND CORPORATE ENVIRONMENTAL PERFORMANCE OF SMES

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ABSTRACT

The effect of economic freedom on firms' environmental responsible management is still unconcluded. We conjecture that the effects are conditional on a firm's internal motivation and use a large-scale survey to run an empirical test. The sample consists of 4,338 small and medium-sized enterprises from twelve European countries. Distinguishing between intrinsic (environmental) and extrinsic (profit) internal motivations, we find clear support that the effects of economic freedom and intrinsic motivation on corporate environmental performance interact with each other. Our findings explain the ambiguous results of previous empirical studies at the aggregate level.

KEYWORDS*: Corporate environmental performance, Economic freedom, Intrinsic motivation, Extrinsic Motivation, Interaction*

1. INTRODUCTION

Whether free-market capitalism is compatible with or harmful to environmental sustainability is strongly debated. Various authors argue that capitalism may inhibit corporate environmental performance, because private industry will invest in the most profitable technologies, which leads to a focus on the cheapest rather than environmentally responsible processes (Williamson et al., 2006, Bell, 2015). Other authors argue that economic freedom in markets and competition stimulate corporate environmental performance (CEP) (Baughn et al., 2007; Jackson and Apostolakou, 2010; Kinderman, 2012; Hartmann and Uhlenbruck, 2015), and businesses has expressed its interest in adopting a more extensive CEP approach conditional upon receiving greater freedom from the state (Kinderman, 2008).

While others have considered the benefits and costs of regulation (cf. Brammer et al., 2012, Agan et al., 2013); we look at the broad measure of economic freedom. Economic freedom means that property rights are secure and that individuals are free to use, exchange, or give their property to another as long as their actions do not violate the identical rights of others (Gwartney and Lawson, 2003). Economic freedom declines if the government intervenes through taxation, trade tariffs or other trade barriers, or regulations of credit, output and labor markets. A stronger protection of property rights has been found to lead to environmental improvements (Ioannou and Serafeim, 2012). Free trade, another exponent of economic freedom, has however, ambiguous effects. Whereas the so-called gains-from-trade hypothesis presumes that trade has a positive effect on the environment; the so-called race-to-the-bottom hypothesis states that open countries adopt lax environmental standards and become pollution havens in order to attract multinational corporations or export pollution-intensive goods (Frankel and Rose, 2005). A literature study of Carson (2010) shows that the supporting empirical evidence of either hypothesis remains scant and fragile. Also for state regulation, evidence is mixed. Camisón (2010) found that the effectiveness of coercive regulation in promoting environmental innovation is lower than voluntary policies. Demirel et al. (2018) found that effective environmental protection entails collaboration between government regulation and voluntary environmental measures. Coercive legislation does not leave

much room for flexibility and voluntary choices by managers and frequently pushes the manager to adopt environmental measures without considering effectiveness (Daddi et al., 2016). For economic freedom more generally, Jackson and Apostolakou (2010) argue and found that firms in liberal market economies outstrip firms in coordinated market economies, because their voluntary CEP initiatives substitute for the lack of government interventions. Kinderman (2012) stated that during the period of rapid deregulation and liberalization in the UK (a typical liberal market economy) CEP not only developed and thrived, but even managed to outperform the previous economic model in terms of corporate accountability and corporate standards.

We contribute to this literature, presenting evidence for an important modification of the argument of Jackson and Apostolakou (2010) and Kinderman (2012) that companies voluntarily adopt a more extensive CEP approach if the state reduces its interventions: the positive effect of economic freedom on CEP is conditional on internal motivations to CEP. The literature on motives for corporate social performance (CSP), (which includes corporate environmental performance) distinguishes between extrinsic and intrinsic motives (Muller and Kolk, 2010).[1] An extrinsic motive encourages CEP if it is instrumental for other goals, such as financial performance or the company's reputation. Intrinsic motives perceive CEP as an end in itself, independent from other benefits. Intrinsic (environmental) motivation may stem from personal satisfaction of engaging in CEP when executives enjoy helping others or from a sense of responsibility to contribute to society and the welfare of future generations (Lindenberg, 2001). Previous studies have focused on drivers external and internal to the firm (Weaver, Treviño and Cochran, 1999; Aguilera et al., 2007, Bracke et al., 2008, Haller and Murphy, 2012), but did not consider that the influence of internal drivers interact with the external drivers. We fill a gap in this literature studying this interaction, exploiting the variation between companies in their environmental motivation and between countries in their level of economic freedom. We hypothesize and test that economic freedom increases CEP for firms with internally motivated managers, e.g. through

[1] See Pellerano et al. (2017) for a similar distinction at the consumer side.

voluntary actions (Alberini and Segerson, 2002), while absence of economic freedom increases CEP for firms without. Our paper thereby fits in a growing literature that considers more 'behavioral' drivers for environmental performance (Croson and Treich, 2014).

We focus on small and medium sized enterprises (SMEs), as the managers' values and motives play a relatively important role for these (Revell, 2010). We use a recent survey with entries for 4,338 companies from 12 European countries; we interact managerial motivation with country economic freedom to test its effect on environmental performance. The use of survey data allows us a deeper look into motivation, complementing previous studies that focus on public structural data (cf. Bracke et al., 2008, Haller and Murphy, 2012).

Our paper thus makes two major contribution to existing literature. First, we extend and deepen existing literature on institutional drivers of CEP by arguing that the impacts of market institutions on CEP depend on their virtuous interaction with internal motivations towards CEP. Second, we test empirically if and what kind of motivation interacts with economic freedom in their influences on CEP, exploiting a sample of SMEs from 12 European countries that provides a good setting for such a study because of the prominence of manager's personal motivations in CEP strategies of SMEs.

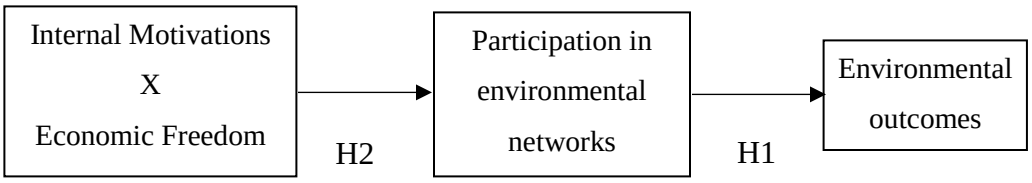
2. HYPOTHESES

Corporate environmental performance is one of the dimensions of the broader concept of corporate social performance. Wood defines corporate social performance as "a business organization's configuration of principles of social responsibility, processes of social responsiveness, and policies, programs and observable outcomes as they relate to the firm's societal relationships" (Wood, 1991: 693). Wood's definition consists of three parts (Wood, 2010). The first part concerns the principles of social responsibility and constitutes the motivations for companies to be involved in CEP. The second part refers to the processes of CEP, including stakeholder management and environmental policies. The third part comprises the outcomes in terms of the effects on stakeholders and society, including the effects on the natural environment. In our empirical analysis, we measure

internal motivations to CEP that link to the first part of Wood's definition. We also measure the implementation of environmental policies and their outcomes, linking to the second and third parts of corporate environmental performance.

Following other studies (Weaver, Treviño and Cochran, 1999; Aguilera et al., 2007), we assume that CEP depends on a combination of external pressures (economic freedom in our context) and factors internal to the company. We extend previous studies as we postulate that the CEP is influenced by the interaction between internal motivations and economic freedom. More specifically, we assume that the interaction between economic freedom and internal motivations stimulates the participation in environmental networks that improves environmental outcomes at company level (see Figure 1). Below, we will first discuss Hypothesis 1. Next, we elaborate on Hypothesis 2 which concerns the main contribution of this paper.

Figure 1. Conceptual model



2.1. PARTICIPATION IN ENVIRONMENTAL NETWORKS AND ENVIRONMENTAL OUTCOMES

In the small business context, a growing literature and awareness has emerged on the effectiveness of implicit and embedded approaches to environmental responsibility (Wickert et al., 2016). Effective implementation for SMEs requires cooperation, in which firms draw on their social capital and connections to stakeholders with high proximity (Wickert et al., 2016). External knowledge compensates the constrained in-house expertise and provides appropriate solutions to ecological challenges (Bos-Brouwers, 2010). Participation in external networks to share best practices is particularly appropriate for this purpose (Valentine et al., 2016). Indeed, small businesses that invest in tools and solutions with significant pro-environmental impact identify these solutions through other participants in their networks (Wohlfarth et al., 2017).

Based on this argument, we expect that participation in external environmental networks helps SMEs improving their environmental outcomes:

HYPOTHESIS 1: *Participation in environmental networks improves environmental outcomes*

2.2. ECONOMIC FREEDOM, INTERNAL MOTIVATIONS AND PARTICIPATION IN ENVIRONMENTAL NETWORKS

Institutional theory describes how corporations' decisions depend on the institutional context (North, 1990), and this framework is central to most studies considering differences in firms' corporate environmental performance across countries (Matten and Moon, 2008; Ioannou and Serafeim, 2012). But how the free market system affects the corporate environmental performance of companies is still an underdeveloped research theme. The degree of freedom of a market system can be measured by the economic freedom of a country, which refers to the personal liberty to voluntary exchange and compete in the market while enjoying security and property protection (Gwartney and Lawson, 2003). Economic freedom comprises several dimensions such as low share of government in GDP and low tax rates, protection of property rights, freedom to exchange goods and services internationally, and no regulatory restraints that limit the freedom of exchange in credit, labor, and product markets. Earlier studies by Baughn et al. (2007) and Hartmann and Uhlenbruck (2015) find that economic freedom stimulates CEP.

However, when researchers only focus on institutional factors, there is insufficient consideration for differences in CEP at the individual company level. Although some companies have incorporated CEP in their business model, it is not standard business practice. There is a flavor of social desirability in the belief that alleviating regulatory constrains from firms increases their contribution to society and the environment in terms of resources and efforts. But corporations have more options. Various authors argue that capitalism may inhibit rather than encourage improving environmental performance, since private industry will mostly invest in technologies that it expects to be profitable (Bell, 2015).

In this paper, we postulate that internal motivations of managers are fundamental for the company's engagement in CEP in a free market system. Motivation (i.e. the reason upon which one acts) is an important antecedent to behavior (Treviño et al., 2006). The literature on motives for CSP and CEP distinguishes between extrinsic and intrinsic motives (Muller and Kolk, 2010; Rode et al., 2015; Abatayo and Lynham, 2016). An extrinsic motive encourages CEP because of its instrumental value for other goals, such as financial performance or the company's reputation. Intrinsically motivated CEP requires no separate reward but the behavior itself (Vollan, 2008). Intrinsic motivation may stem from personal satisfaction of engaging in CEP when executives enjoy helping others (Rabin, 1998) or enjoy a 'warm glow' from contributing to a public good. But intrinsic motivation may also stem from a genuine concern for the environment and a sense of obligation to contribute to society and the welfare of future generations (Lindenberg, 2001). The goal is then to act appropriately. Managers feel that they are responsible to prevent negative impacts of their companies on the natural environment (Bansal and Roth, 2000).

We expect that economic freedom will hardly encourage companies to increase their engagement in CEP if they are not intrinsically motivated to take responsibility for the environment. That is, we expect that the positive relationship between economic freedom and CEP is conditional on intrinsic environmental motivation. Since environmental policies may require costly investments, companies will be less motivated by the extrinsic profit motive to make investments in CEP.[2] This particularly holds for small and medium sized enterprises. The level playing field on which most SMEs operate means that they face severe competition and this puts profitability under pressure. Time, finances and a lack of skills and knowledge are commonly identified by SMEs as constraints to CEP (Studer et al., 2006). Low profitability induces low cost strategies and reduces a long-term orientation so that long-term strategic benefits from corporate environmental performance in terms of improved reputation, cost reduction, increased consumer demand and reduction in risks often remain beyond the strategic horizon.

[2] There is not much evidence that it pays to be green for firms (Telle 2006)

Moreover, because of their smaller size, Brammer et al. (2012) argue that SMEs are less visible to NGOs and media, compared to large companies, and cannot take advantage of CEP as instrumental for extrinsic profit motives. This implies that, as Lynch-Wood and Williamson (2007) argue, the profit motive is potentially weak to induce SMEs to go beyond compliance to the law, though we do not want to fully exclude reputational effects, e.g. if their CEP is monitored by local NGOs or local media. If a local NGO or newspaper spreads negative news about a small company, it might directly harm its reputation at its location (Jamali and Mirshak, 2007) and the company would run the risk of economic loss (Russo and Tencati, 2009). Because of their intimate relationship with the community in which they operate, SMEs also need to pursue a community-friendly policy (Jenkins, 2009). Hence, also some SMEs will realize that low environmental performance may have serious consequences for the enterprise's reputation and economic performance and be extrinsically motivated to implement environmental policies in order to improve their environmental outcomes. However, if companies are motivated by the business case, they will adopt CEP only insofar it can be aligned to narrow strategic interests (Marens, 2008). These companies will be tempted to use ceremonial instead of substantive CEP policies in order to gain social legitimacy without incurring the costs of substantive CEP policies. CEP is ceremonial if companies decouple policies from implementation and/or impacts (Jamali, 2010; Okhmatovskiy & David, 2012).

But if the management of a company is intrinsically motivated to improve environmental performance, economic freedom enables the managers to implement environmental policies that improve environmental outcomes, such as participation in environmental networks, even if these are costly and not profitable. Indeed, firms whose managers are highly intrinsically motivated to CEP are likely to apply broad and effective programmes if external conditions allow them to (Muller and Kolk, 2010). If companies have little freedom to determine their own policies, internal motivations will have a lesser effect on environmental performance. Under these conditions internally motivated companies would perhaps have a stronger inclination to do so, but in practice focus on complying with the interventions and standards prescribed by the government (Jackson & Apostolakou, 2010).

The discussion above illustrates that in free market economies companies without intrinsic motivation are unlikely to participate in environmental networks that improve environmental outcomes, whereas intrinsic motivation is unlikely to stimulate participation in environmental networks if the economic freedom to undertake private initiatives is limited. In this interactive view, there must be a 'fit' between the institutional environment and firm-internal characteristics, including managers' intentions. Based on these arguments, we propose the following hypothesis.

HYPOTHESIS 2: *The participation in environmental networks is positively related to the interaction between the internal factor intrinsic environmental motivation and the external factor economic freedom*

We complement the first hypothesis with a Placebo or falsification test, as follows. We compare intrinsic and extrinsic environmental motivation. Both motivational factors are significantly positively correlated (Table 2). Whereas from a theory point of view extrinsic motivation should have no or a small positive marginal effect on firms' participation in environmental networks, if our findings are e.g. based on an omitted variable correlated to motivation, we a priori expect both motivational terms to be equally affected. Thus, if we find a much smaller or no effect of extrinsic motivation, such finding would provide additional support for causality for the association mentioned in the first hypothesis.

PLACEBO TEST: *The participation in environmental networks is not (or much less) related to the interaction between extrinsic environmental motivation and economic freedom.*

3. METHODS

3.1. MODEL SPECIFICATION

Taking the two hypotheses together, we formulate these as an empirical structural equation model (SEM):

$$P_{c,i} = \alpha_P + \beta_I F_c I_i + \beta_E F_c E_i + \gamma_P F_c + \delta_I I_i + \delta_E E_i + \chi_P X_c + \theta_P Y_i + \xi_P Z_{c,i} + \mu_{N,c,i} \quad (1)$$

$$O_{c,i} = \alpha_O + \varepsilon_O P_{c,i} + \beta_{OI} F_c I_i + \beta_{OE} F_c E_i + \gamma_O F_c + \delta_{OI} I_i + \delta_{OE} E_i + \chi_O X_c + \theta_O Y_i + \xi_O Z_{c,i} + \mu_{O,c,i} \quad (2)$$

where $P_{c,i}$ and $O_{c,i}$ are the participation in environmental networks and outcomes of company i in country c, respectively, F_c is economic freedom, I_i and E_i are intrinsic and extrinsic motivations, X_c are country control variables, Y_i are company control variables, $Z_{c,i}$ are other control variables discussed below, and $\mu_{c,i}$ is white noise. Interaction is tested by the significance of the interaction terms $F_c I_i$ (H2) and $F_c E_i$ (Placebo) (β_I and/or β_E). In order to test for the interaction effects, we need to control for the linear effects of economic freedom and internal motivations and other controls in equation (1). The indirect effect of the interaction terms on environmental outcomes is tested by the significance of ε_O in equation (2), while controlling for the direct effects of the interaction terms on environmental outcomes (Baron and Kenny, 1986) and other controls.

We are mostly interested in the effect of an institutional macro variable, economic freedom, on the firm-level CEP, so that we can use cross-firm data with no problem of reverse causality.

3.2. DATA SOURCES

We use the average score of the 'Economic Freedom of the World' index of Fraser Institute during 2008-2010, downloaded from the websites of Fraser Institute. Most statistical and other information underlying this index are received from government sources and are verified with independent, credible third-party sources.

Data for CEP was generated through a large online survey in 2011 that targeted small and medium sized enterprises (SMEs) operating in 12 countries from different European regions: Continental Western Europe (Austria, Germany, France, and the Netherlands); Scandinavia (Finland, Sweden, and Denmark); Mediterranean Europe

(Italy, Spain); Central Europe (Poland and Hungary); and Anglo-Saxon Europe (the United Kingdom). This sample of countries is considered representative of the existing variety of political and economic systems in Europe. Before sending out the survey, we discussed the survey questions in two rounds with a group of 14 experts in CSP from the twelve European countries where the survey would be set out. The survey was also discussed with a CEP consultant for SMEs to test whether the survey fits the SME context. Next, we pre-tested it by interviewing executives from ten companies in different sectors. The aim of the interviews was to explore measures and terms to be used in order to secure content validity. Executives were asked to fill in the survey before the interview was held. Then the researchers visited the company and discussed the company's responses in depth to check the clarity of the survey questions and whether they suited the CEP of the company. Once agreed, the survey questions were translated from English into the national languages by 12 native speaker experts in the research team.

The response percentage of the companies that were invited to participate (365,002 companies in total) was 3.7%, a reasonable figure considering the survey was electronic and required substantial effort to complete. This discourages participation, particularly for SMEs. 4,338 companies filled in all questions used in this article, of which 91% are small and medium sized enterprises.

3.3. MEASURES

Following literature (Trevino et al., 2006; Lindenberg, 2001; Muller and Kolk, 2010) motivation is defined as the reason upon which one acts. A motive is assumed to have a causal effect on behavior (besides other causes). One way to empirically measure motives is by asking people for the reason for a certain action (Elster, 2007). The principle of *nemo gratis mendax* (no one lies freely) suggests that expressions of motive should not be doubted per se, but only if there is reason because of particular circumstances (O'Mahoney, 2012). Systematic errors can arise when respondents tend to report socially desirable answers or consciously or unconsciously aim for consistency between answers. In order to prevent social desirable answers, we followed several precautionary measures and ex-post tests recommended by Podsakoff et al. (2003). First,

in the cover letter to the respondents, we emphasize confidentiality, reducing motives for a more favorable picture. Second, we separated questions on internal motivations in (questions 23-27), from those on environmental policies (questions 45-48), and those on environmental outcomes (questions 102-105), so that no connection between these questions is perceived. We measure intrinsic motivation by two survey questions. The first question measures moral motivation by asking the respondent to state his or her view on the extent to which the company's engagement in CEP is motivated by the company's responsibility for the environment and society. The second survey question measures personal satisfaction by inquiring to what extent personal satisfaction of the people in the enterprise is a motive to engage in environmental responsibility. Extrinsic motivation was measured by three survey questions on long-term financial benefits, reduction in reputational risks and customer demand as motives for engaging in CEP (see also Table 1 below). All survey questions are measured by a seven-point Likert scale.

The questions for participation in environmental networks were based on literature and in collaboration with the SME consultant. In response to the question 'Which measures are realized in your enterprise?', several measures were given, including participation in CEP networks in the supply chain (Pirsch et al., 2006; Bos-Brouwers, 2010), partnerships with professional training institutes in order to anticipate the technological evolution of products or services (Bos-Brouwers, 2010), participation in local CEP initiatives of governments or social organizations (Barth and Wolff, 2009), and dialogue with societal organizations and local communities (Hall et al., 2015). For each measure, the respondent could choose between three options: 'no' (0), 'yes' (1) and 'unfamiliar with this measure.' The third option is recoded as 'no'.

Environmental outcomes was measured by self-reported outcome variables. Empirical studies on environmental performance often use ratings from professional rating bureaus (ASSET 4, etc.) that measure large companies. Such ratings are not available for SMEs and so we developed our own measurements, using the following steps. First, we analyzed how environmental performances are measured by professional rating bureaus. We only considered generic measurements, not sector specific variables. We sought guidance from an SME consultant who specialized in advising SMEs on their

environmental performance to establish the kind of indicators known to micro, small and medium-sized companies, indicators that they could look up relatively easily when filling out the survey questions. Based on this, we selected energy use, water use, and waste disposal. Based on a pilot survey among 10 companies, we fine-tuned the cut-off values of seven categories ranging from -3 to +3, measuring the growth in energy consumption, water consumption and waste during 2010-2013: 1. Decreased by more than 5% (-3); 2. Decreased by 3-5% (-2); 3. Decreased by 1-3% (-1); 4. Not changed very much (0); 5. Increased by 1-3% (1); 6. Increased by 3-5% (2); 7. Increased by more than 5% (3).

We use both explorative and confirmatory factor analysis to test the clustering of the survey variables in the four factors identified by our labels 'Intrinsic motivation,' 'Extrinsic motivation', 'Environmental networks,' and 'Environmental outcomes'. Recall that the proposed clustering is based on the literature and clearly related to the theoretical meaning of these variables, but there is no previous literature that establishes the relation between our expected factors (intrinsic motivation etc.) and the survey variables. It is then common practice to use an exploratory factor analysis to test our predictions about the factor decomposition of the survey questions. Explorative factor analysis is independent of the structural model, the factor elements are chosen purely on the basis of the subset of survey questions, and free of any *a priori* assumed relationships. The results of the explorative factor analysis reported in Table 1 provide support for the four factors. The KMO measure of sampling adequacy and the Bartlett's Test of sphericity support the use of factor analysis on the dataset. The Cronbach's alphas confirm that the four factors are internally consistent, as they meet the accepted threshold of 0.60. The confirmatory factor analysis tests validity of the factors in the specific context of the structural equation model. It is thus performed simultaneously with the estimation of the structural model that we present below (See Table 3 below).

TABLE 1. Explorative factor analysis of survey items[a]

Variables	Mean	SD	Factor loadings			
			Intrinsic motivation	Extrinsic motivation	Env. networks	Env. outcomes
How important are the following motives for your enterprise to engage in CEP?						
Your enterprise feels responsible for the planet and society	5.21	1.48	0.88			
It creates personal satisfaction for the people in your enterprise	5.09	1.42	0.87			
It serves long-term financial interests of shareholders and/or director owner	3.78	1.85		0.73		
It limits reputational risks	4.56	1.58		0.74		
Large customers ask for it	3.97	1.88		0.75		
Which measures are realized in your enterprise?						
CEP cooperation supply chain	0.37	0.48			0.66	
Partnerships with training institutes	0.36	0.48			0.65	
Participation in local CEP initiatives	0.42	0.49			0.73	
Active dialogue with NGOs concerning CEP issues	0.17	0.38			0.66	
Has your performance on the following environmental aspects increased, decreased or remained more or less the same in 2010 compared to 2007						
Decrease in energy consumption	0.46	1.38				0.86
Decrease in water consumption	0.34	1.09				0.88
Decrease in waste	0.38	1.21				0.86
Eigenvalue			1.05	2.74	1.41	2.17
Variance explained			9%	23%	12%	18%
Cronbach alpha			0.73	0.62	0.62	0.83

[a] Extraction Method: Principal Component Analysis; Rotation Method: Oblimin with Kaiser Normalization. Kaiser-Meyer-Olkin (KMO) = 0.735; p-value of Bartlett's Test of Sphericity = 0.000.

3.4. CONTROL VARIABLES

We use four types of control variables (for measurement details, see footnotes of Table 2). At the macro level we controlled for GDP per capita (PPP, constant international USD in 2011), power distance, and individualism (Ioannou and Serafeim, 2012). GDP per capita has been taken from World Bank and the indices for national culture from Hofstede (http://geerthofstede.nl/dimensions-of-national-cultures). To control for the market environment in which the company operates we used sector fixed effects, the

company's position in the chain, and intensity of price competition. Furthermore, we controlled for four firm-specific characteristics: the size and growth of the company (measured by the logarithm of the number of FTEs), the skill structure and the age structure of the company. Lastly, we controlled for the function (director-owner, director, manager, or other) and the age of the respondent.

TABLE 2 Data descriptives and correlations including control variables[a]

	Mean	SD	Econ. freedom	Intrinsic motivation	Extrinsic motivation	Env. networks	Env. outcome
Country characteristics							
Economic freedom	7.33	0.24	1.				
Intrinsic motivation[b]	0.00	1.00	*0.03*	1.			
Extrinsic motivation[b]	0.00	1.00	**0.08**	**0.56**	1.		
Env. networks	0.00	1.00	**0.12**	**0.26**	**0.37**	1.	
Env. outcomes[b]	0.00	1.00	**0.04**	**0.05**	**0.06**	**0.09**	1.
Country controls							
Power distance	46.49	14.66	*-0.63*	**-0.07**	**-0.05**	**-0.09**	-0.01
Individualism	70.28	9.65	0.06	-0.02	*0.02*	*-0.04*	-0.00
GDP per capita (natural log)	3.16	0.43	0.57	0.03	**0.05**	-0.01	0.00
Sector controls							
Materials	0.16	0.37	-0.02	*-0.04*	-0.01	*-0.04*	*0.04*
Energy	0.03	0.18	0.00	0.02	**0.05**	**0.05**	-0.01
Industrials	0.17	0.37	-0.03	-0.02	-0.01	-0.02	-0.03
Consumer staple	0.04	0.19	-0.01	-0.02	0.02	0.02	0.01
Consumer discretionary	0.17	0.38	*-0.04*	-0.01	-0.01	-0.02	0.01
Financials	0.03	0.16	**0.06**	-0.00	0.00	0.00	0.00
IT & com	0.03	0.18	0.01	*0.04*	-0.01	-0.01	-0.02
Other sectors	0.37	0.51	**0.06**	*0.04*	-0.02	*0.04*	-0.01
Firm controls							
B2C[c]	2.03	1.07	*-0.04*	0.02	0.00	**0.10**	-0.00
Price competition[d]	5.07	1.88	**-0.19**	-0.03	0.01	**-0.09**	0.01
Company size[e]	3.52	1.82	**0.23**	*0.04*	**0.15**	**0.31**	0.02
Company growth	3.56	38.44	0.04	**0.07**	**0.06**	**0.07**	**-0.19**
Young employees[f]	10.51	13.58	**0.09**	**0.05**	**0.04**	**0.12**	-0.03
Medium aged[f]	67.26	22.80	**-0.21**	0.00	-0.00	**-0.07**	-0.03
Old aged[f]	22.15	21.00	**0.17**	-0.03	-0.02	-0.01	*0.04*
Low skilled[g]	33.13	31.93	**0.06**	**-0.08**	-0.01	-0.01	0.03
Medium skilled[g]	41.45	29.41	**-0.12**	-0.02	0.00	**-0.08**	-0.02
High skilled[g]	25.42	28.38	**0.07**	**0.12**	0.01	**0.09**	-0.02
Respondent controls							
Age respondent[h]	2.76	0.91	**0.06**	**0.05**	-0.01	**-0.05**	0.03
Owner	0.33	0.47	**-0.05**	*0.04*	**-0.07**	**-0.14**	0.01
Director	0.19	0.39	**0.12**	*0.04*	0.02	**0.07**	0.01
Manager	0.19	0.40	**0.10**	-0.00	**0.06**	**0.10**	0.01

Other function	0.29	0.45	**-0.14**	**-0.08**	0.01	0.01	-0.03

[a] Italics: $p<0.05$; bold: $p<0.01$.

[b] The constructed data for the factors intrinsic motivation, participation in environmental networks, and environmental performance are standardized to zero mean and unit standard deviation.

[c] Mean response to 5 point scale ranging from: 'B2B'(1) to 'B2C'(5).

[d] Mean response to 7 point scale ranging from: 'not at all'(1) to 'very much'(7)

[e] Natural log, number of FTE

[f] Young: % of employees younger than 25 years; Medium aged: % of employees between 25 and 50 years; Old: % of employees older than 50 years

[g] Low skilled: % of employees with no qualifications, O-levels, CSEs, GCSEs); Medium skilled: % of employees with A levels or BTEC equivalent; High skilled % of employees with degree and post graduate level qualifications

[h] Measured by four age groups (1= <30; 2 = 30-34; 3=46-55; 4: >55 years).

3.5. REVERSE CAUSALITY AND NON-RESPONSE BIAS

Since economic freedom is measured at the country level and CEP at the level of the individual SME, there is no concern of reverse causality (from individual firms to countries). In order to evaluate the non-response bias, we use Heckman's two-stage estimation procedure (Certo et al., 2016). The first step uses a logistic model that explains the response (0 for non-response; 1 for response).[3] In the second step the ultimate model of interest is estimated. As exclusion restriction we used the degree of feeling European measured by the Eurobarometer (an annual survey of the European Commission based on approximately 1000 face-to-face interviews per country). Because the invitation letter that requested companies to respond to the survey was signed by a representative of the European Union, it is expected that respondents who feel more European are more inclined to cooperate to the survey, independent from their interest in CEP. The estimation results of the logistic model supported this proposition and showed a highly significant positive effect of feeling European on the response rate ($p<0.001$), while controlling for sector, company size and the starting year of the company. From the regression result, we calculated the inverse Mills ratio, which indicates the degree that the response is influenced by unobserved characteristics of the

[3] We used the transformation proposed by Lee (1983) to transform probabilities into pseudo-probit scores for calculating the inverse Mill's ratio.

company.[4] We find that the inverse Mill's ratio is significantly related to intrinsic motivation and certifications. Based on these results, we decide to include the inverse Mill's ratio in the regression analysis, which removes the non-response bias part from the error terms.

3.6. COMMON METHOD BIAS

In order to prevent common method bias in the measurement of internal motivations, environmental policies and outcomes, we followed several precautionary measures and ex-post tests recommended by Podsakoff et al. (2003). As a first precautionary measure, the scales for internal motivations and CEP questions differ, reducing commonalities in scale endpoints and anchoring effects. Second, as discussed above, we separated questions on internal motivations from those on environmental policies and outcomes, so that no connection between these questions is perceived. Third, we kept questions simple, specific and concise, steering respondents to least-effort genuine answers. Finally, we applied an ex post test for common method bias using the marker variable technique. The marker variable of our choice is theoretically unrelated to intrinsic motivation, and its correlation to motivation is an indicator of common source bias. As marker variable we selected the share of permanent contracts with employees (as a % of all employee contracts) in 2010, for which we find a correlation of 0.005 (p=0.746). This suggests that we do not need to correct the substantive survey variable outcomes for common source bias.

4. FINDINGS

We used structural equation modeling (SEM) with maximum likelihood estimation for equations (1) and (2). The structural paths and the confirmatory factor analysis[5] are

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[4] The estimation results of the response model are reported in Table A.1 in the Appendix.

[5] In formal notation, we have high-dimensional survey data $S_{c,i}$ for company i in country c, and search for a 4-dimensional factor $FAC_{c,i} = (I_{c,i}, E_{c,i}, P_{c,i}, O_{c,i})$ that minimizes the unexplained variation $\mu_{S,c,i}$.

simultaneously estimated. As the economic freedom variables are country-level variables and CEP variables are firm-level variables, we cluster errors over countries to account for the unobservable factors that are correlated with firm's motivation and performance within each country and are not correlated with those from other countries (Peterson *et al.*, 2012). Table 3 reports the estimation results for the structural paths. The results for control variables and measurement model (confirmatory factor analysis) are given in Table A.2 in the Appendix. The model is confirmed by global fit indices. The CFI and TLI indices suggest a good model fit (Kaplan, 2009). Good model fit is also confirmed by the RMSEA measure, with value smaller than 0.06 (Hu and Bentler, 1999).

The estimation results in columns 1 and 2, model 1, show that the interaction term of economic freedom and intrinsic motivation increases participation in environmental networks, in support of Hypothesis 2. The results in Columns 3 and 4 show no significant positive effect of the interaction term of economic freedom and extrinsic motivation, consistent with the placebo test. The last two columns show the effects to be robust, despite the correlation between the two internal motivation variables. The importance of intrinsic motivation vis-à-vis extrinsic motivation is further stressed by comparing the direct effects of intrinsic and extrinsic motivation on environmental networks. These seem highly significant when considered in isolation (columns 1-4), but the coefficient for extrinsic motivation suffers from omitted variable bias, shown in the last two columns. The joint model shows significant direct effects for intrinsic motivation and insignificant for extrinsic motivation. The last row shows that firms' participation in environmental networks have a significant positive effect on environmental outcomes, supporting Hypothesis 1.

$$S_{c,i} = \alpha_S + \lambda_S FAC_{c,i} + \mu_{S,c,i}$$

where λ_S is called the loading matrix, presented in measurement part of Table 3 below.

TABLE 3. Estimation results[a]

Model	1a	1b	2a	2b	3a	3b
Dependent variable	Env. networks	Env. outcomes	Env. networks	Env. Outcomes	Env. networks	Env. outcomes
Structural paths interaction terms						
EF x Intrinsic motivation	0.036*	0.028*			0.037*	0.018
	(0.016)	(0.011)			(0.016)	(0.016)
EF x Extrinsic motivation			0.012	0.021	0.013	0.015
			(0.028)	(0.011)	(0.029)	(0.014)
Structural paths direct linear terms						
Intrinsic motivation	0.379***	0.023			0.333***	0.039
	(0.016)	(0.019)			(0.028)	(0.022)
Extrinsic motivation			0.280***	-0.007	0.076	-0.021
			(0.040)	(0.022)	(0.048)	(0.024)
Economic freedom (EF)	-0.022	0.075***	-0.067	0.068**	-0.031	0.073**
	(0.027)	(0.024)	(0.040)	(0.024)	(0.028)	(0.024)
Environmental networks		0.152***		0.168***		0.151***
		(0.036)		(0.035)		(0.034)
Global fit indices (for 1a and 1b, 2a and 2b, 3a and 3b)						
RMSEA	0.02		0.03		0.03	
CFI	0.95		0.91		0.91	
TLI	0.93		0.88		0.88	
SMRM	0.02		0.02		0.02	

[a] Standardized (beta) coefficients. Robust standard errors clustered by country. Standard errors between brackets. * p<0.05 ** p<0.01 *** p<0.001. All models use control variables and have N=4,338. More details in the Appendix.

From these estimation results we conclude that only the interaction between intrinsic motivation and economic freedom influences CEP. The global fit indices are best for the first model, so that columns 1 and 2 present our preferred model. Another noteworthy aspect of this model is that the interaction term between economic freedom and intrinsic motivation is seen to have a direct, significant effect not only on company's participation in environmental networks but also on environmental outcomes (p value = 0.010). This finding indicates that the interacting influence of intrinsic motivation and economic freedom on economic outcomes is not only mediated by cooperation in the supply chain, partnerships with training institutes, participation in local initiatives and dialogue with NGOs, but also by other measures that improve environmental outcomes, that are not included in our measurement of environmental networks. Loss of significance for this interaction effect in the last column we interpret as the result of collinearity between intrinsic and extrinsic motivation.

Based on the estimation results of model 1, we calculate the total effects of the interaction term of economic freedom and intrinsic motivation on environmental outcomes, that is, the sum of the direct effect and the indirect effects through participation in environmental networks ($\beta_{OI} + \beta_I \varepsilon_O$). The results in Table 4 show that the direct, indirect as well as the total effect of the interaction term of economic freedom and intrinsic motivation on environmental outcomes are significant.

TABLE 4. Direct, indirect and total effects on environmental outcomes[a]

	Direct effect	Indirect effect	Total effect
Economic freedom (EF)	γ_O=0.082 (0.000)	$\gamma_P \varepsilon_O$=-0.004 (0.488)	0.079 (0.000)
Intrinsic motivation (I)	δ_{OI}=0.022 (0.226)	$\delta_I \varepsilon_O$=0.054 (0.000)	0.075 (0.000)
EF x I	β_{OI}=0.030 (0.012)	$\beta_I \varepsilon_O$=0.006 (0.002)	0.036 (0.005)

[a] Unstandardized coefficients; p values between brackets.

Next, we calculated the differential effects between Italy (lowest economic freedom) and the UK (highest economic freedom) for a firm with average, low and high intrinsic motivation. Table 5 shows that a rise in economic freedom induces companies with low intrinsic motivation to worsen environmental outcomes, whereas companies with high intrinsic motivation use the extra economic freedom for bettering their contribution to the environment. The table unambiguously shows the importance of the interaction between intrinsic motivation and economic freedom for environmental outcomes. The average effect of economic freedom is positive, though.

TABLE 5. Estimated total effect of difference in economic freedom on environmental performance[a]

Intrinsic motivation of companies (X)		
X=Lowest in Sample	X=Sample Average	X=Highest in sample
–0.15	0.27	0.69

[a] $a_1 (EF_{UK} - EF_{It}) + a_2 (EF_{UK} - EF_{It}) * X$. a_1 and a_2 denote the total effects of economic freedom (EF) and the interaction term of economic freedom and intrinsic motivation, EF_{UK} (standardized) economic freedom of UK, EF_{It} (standardized) economic freedom in Italy, and X (standardized) intrinsic motive.

5. CONCLUSIONS

5.1 CONTRIBUTION TO LITERATURE

Small businesses are the most common business form globally, and they collectively account for up to 70% of industrial pollution worldwide (Hillary, 2000). Governments may enforce improved environmental performance by government interventions, but these come with the disadvantage of losing out on voluntary initiatives. Though awareness of the need for a transition to a more sustainable economy is widely spread, not every firm is equally supportive for (voluntarily) measures that improve environmental performance. Particularly small and medium sized enterprises may be hesitant to invest resources in sustainable production processes, because of intensive competition. The question whether more or less economic freedom results in more environmental responsible management, has remained open. Previous research has shown that (certain aspects of) economic freedom might increase CSP (Baughn et al., 2007; Jackson and Apostolakou, 2010, Ioannou and Serafeim, 2012; Kinderman, 2012; Hartmann and Uhlenbruck, 2015). But these previous studies did not consider how the free market system affects the corporate environmental performance of companies. Although economic freedom may stimulate some companies to incorporate CEP in their business model, it is not a standard business practice.

We approached the question how economic freedom affects CEP by studying its interaction with internal motivations. For as far as we know, we are the first in the literature to consider this interaction mechanism. The main contribution of our analysis lies in the finding that the influence of economic freedom on environmental performance appears to be contingent on the intrinsic motivation of companies. This mechanism is reminiscent to interaction effects between external pressures and internal motivation proposed by Muller and Kolk (2010). They find that firm-internal characteristics, including managers' intentions, determine CSP benefits from external pressures. Also Weaver et al. (1999) find that firms whose managers are highly committed to ethics have broader and more deeply rooted ethics programs compared to firms engaged in response to external pressures. This indicates that intrinsic motivation increases the influence of external stimuli to perform certain types of behavior. We postulate that such interaction

also regulates the influence of institutions on company's CEP, and our empirical results confirm the hypothesis: economic freedom stimulates firms whose managers are intrinsically motivated, to integrate environmental sustainability into their operations, while firms whose managers lack intrinsic motivation reduce their environmental performance.

Besides the interaction effect with intrinsic motivation, we also find a direct effect of economic freedom on environmental performance. With fewer government interventions, greater pressure may come from stakeholders towards the developing CEP practices (Jackson and Apostolakou, 2010). Furthermore, economic freedom stimulates free trade, which increases the exchange of information and spurs managerial innovation and diffusion of new technologies that provide companies with more cost-efficient solutions to improve their environmental performance (Frankel and Rose, 2005).

5.2 Policy implications and future research

Our analysis illustrates a general idea that the success of free markets to solve environmental problems depends on the economic agents' motivations. Our results thereby provide an important complement to a simple theory in which profit-maximization is the preeminent rational objective; we find that non-financial motives play an important role in explaining outcome variables. Societies with free-market economies can flourish in-so-far as key market actors have positive intrinsic motivation and act virtuously. But our results cannot be read as an argument in favor of or against government regulation. As the case of climate change highlights, even if economic freedom improves the environmental performance of intrinsically motivated firms, such may be insufficient to reach a sustainable outcome. An obvious next step is to assess the connection between the two measures of external pressure, economic freedom and regulation, and their separate or interacting effects on CEP.

The lesson for management is that it is important to stimulate an ethical culture that encourages moral sensitivity and awareness. This has clear implications for recruitment policies and the socialization and training programs at the company level. At the institutional level, intrinsic motivation can be fostered by calls for social responsible behavior in important business publications and curricula in business schools, and by

dialogues with unions, employees, community groups and other stakeholders; it appears that companies then better appreciate the concerns of these other actors (Campbell, 2007).

Our study provide several opportunities for future research. First, the focus of this research is limited to small and medium-sized enterprises. This provides a good starting point setting for researching the interactions between institutions and intrinsic motivations, as the managers' values and motives play a relatively important role for this type of companies. But the selection also limits validity over the domain of large companies. The scope of crowding theory would considerable be extended if our model can be tested to large companies as well. More theoretical and empirical research is necessary to elucidate the relationships between economic freedom, intrinsic motivations and CEP of large organizations.

Although our focus on SMEs has some major advantages – including that it provides a purer test on the effect of national institutions on CEP than research based on large, multinational companies operating in multiple countries and subject to the influence of multiple nation-level institutions – this focus comes at a cost. Because of the substantial effort required to obtain information on intrinsic CEP motives of SMEs, the sample of our study comprises a relatively small number of countries; we focused on Europe. Future research should aim to further test the robustness of the interaction of the influence of economic freedom and intrinsic motivation on CEP using a more extensive database, preferably considering a set of countries with a more diverse set of institutions.

APPENDIX

TABLE A.1. Estimation results of logistic regression of survey response equation.[a]

	Beta
Feeling European	1.31***
Materials	1.59***
Energy	1.33**
Industrials	1.58***
Consumer	1.62***
Utilities	2.51***
Financials	1.52***
IT & communication	1.94***
Company size <10 FTE	-0.70***
Company size 10-50 FTE	-0.17***
Company size 50-250 FTE	0.17***
Age company	0.04*
R^2	0.07

[a] The survey response is a binary variable ranging from 0 (no response to survey) to 1 (response to survey). * p<0.05, ** p<0.01, *** p<0.001. The reference for sector and company size are other business and large companies. N=365,002.

TABLE A.2 Extended reporting on estimation results[a]

	Model 1		Model 2		Model 3	
	1	2	3	4	5	6
	Env. networks	Env. outcomes	Env. networks	Env. outcomes	Env. networks	Env. outcomes
Country controls						
Power distance	-0.15***	0.08*	-0.20***	0.07*	-0.16***	0.08*
Individualism	0.04	-0.01	0.04	-0.02	0.05	-0.01
GDP per capita	-0.10*	0.00	-0.11*	0.01	-0.11*	0.00
Sector controls						
Materials	-0.01	0.01	-0.00	0.01	-0.00	0.01
Energy	0.02	-0.04*	0.02	-0.04*	0.02	-0.04*
Industrials	-0.00	-0.04*	-0.01	-0.05*	-0.00	-0.04*
Consumer staple	0.02	0.02	0.01	0.02	0.02	0.02
Consumer discretionary	0.00	-0.00	0.01	-0.00	0.01	-0.00
Financials	-0.05*	0.03	-0.06**	0.03	-0.05**	0.03
IT & communication	-0.03**	-0.01	-0.03**	-0.01	-0.03**	-0.01
Firm controls						
B2C	0.12***	-0.02	0.13***	-0.02	0.12***	-0.02
Price competition	-0.08*	0.02	-0.09***	0.02	-0.08**	0.02
Company size	0.36***	-0.02	0.35***	-0.02	0.35***	-0.02
Company growth rate	-0.00	-0.22***	0.00	-0.21***	-0.00	-0.22***
Medium aged	-0.15***	0.03	-0.16***	0.03	-0.15***	0.03
Old aged	-0.11***	0.05	-0.13***	0.05	-0.11***	0.05
Medium skilled	-0.01	-0.02	-0.01	-0.02	-0.01	-0.02
High skilled	0.08*	-0.03	0.11***	-0.03	0.08*	-0.03
Respondent controls						
Age respondent	-0.07**	0.02	-0.06**	0.02	-0.07**	0.02
Owner	0.00	0.03	0.05	0.03	0.01	0.03
Director	0.07***	-0.00	0.10***	-0.00	0.07***	-0.00
Manager	0.06***	0.00	0.08***	0.00	0.06***	
Inverse Mill's ratio	0.05*	-0.02	0.06**	-0.02	0.05*	-0.02
Measurement model (confirmatory factor analysis)						
Intrinsic motivation						
- responsibility	0.79***				0.79***	
- personal satisfaction	0.73***				0.73***	
Extrinsic motivation						
- financial benefits			0.52***		0.49***	
- reputational risks			0.71***		0.76***	
- customer demand			0.54***		0.51***	
Environmental networks						
- cooperation supply chain	0.47***		0.49***		0.48***	
- partnerships	0.47***		0.48***		0.47***	
- local initiatives	0.60***		0.58***		0.59***	
- dialogue	0.47***		0.47***		0.47***	
Environmental outcomes						
- energy	0.76***		0.77***		0.77***	
- waste	0.77***		0.77***		0.77***	
- water	0.82***		0.82***		0.82***	
Global fit indices						

RMSEA	0.02		0.03		0.03	
CFI	0.95		0.91		0.91	
TLI	0.93		0.88		0.88	
SMRM	0.02		0.02		0.02	
R^2	0.36	0.08	0.30	0.08	0.36	0.08

[a] Standardized (beta) coefficients. Robust standard errors clustered by country. * p<0.05 ** p<0.01 *** p<0.001. The reference for skill structure, age structure, function of respondent and sector are unskilled, young, other function and other business. N=4,338.

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