

Environmental sustainability orientation and performance of family and nonfamily firms

Samuel Adomako¹; Joseph Amankwah-Amoah²; Albert Danso³; Renata Konadu³;
Samuel Owusu-Agyei³

Corresponding author: S.Adomako@bradford.ac.uk

Accepted version in **Business Strategy and the Environment Journal (CABS 3*)**

Abstract

Despite the growing research evidence on the effect of environmental sustainability orientation (ESO) on firm outcomes, contingent factors that may influence the strength of this relationship have received little scholarly attention. In this study, we use insights from the literature on ESO and family business to introduce family status and firm age as moderators in the ESO-performance linkage. Using time-lagged data from 253 small and medium-sized enterprises (SMEs) in Ghana, we found the impact of ESO on firm performance is amplified for nonfamily firms but not significant for family firms. Our evidence suggests it is stronger among older firms than younger ones. Implications and directions for future research are discussed.

Keywords: *Environmental sustainability; sustainable development; family vs. nonfamily firms; Ghana; Africa; performance.*

1. Introduction

One of the distinctive features that permeate the transition from the Millennium Development Goals to the Sustainable Development Goals is the relentless focus on ensuring and delivering on environmental sustainability (Economist Intelligence Unit, 2016; United Nations, 2015, 2018). Informed by the growing awareness of the importance of managing global environmental problems such as climate change, substantial attention is being paid to environmental sustainability issues (Delmas and Toffel, 2004; Liu et al., 2010; Quan, Wu, Li and Ying, 2018) and technology adoption (You et al., 2018). Scholars have shown that

¹ School of Management, University of Bradford, Bradford, UK

² Kent Business School, University of Kent, Kent, UK.

³ Leicester Castle Business School, De Montfort University, Leicester, UK.

improvement in a firm's sustainability activities can bring about superior performance (e.g., Amankwah-Amoah et al., 2019; Moyano-Fuentes, et al., 2018; Nidumolu et al. 2009; Roxas, Ashill and Chadee, 2017). However, despite this growing interest, our understanding of how the relationship between a firm's environmental sustainability orientation (ESO) and its performance varies in family versus nonfamily firms lacks theoretical precision.

Previous research indicates that family and nonfamily firms are managed differently (Miller, Le Breton-Miller, Lester and Cannella, 2007; Miller, Minichilli and Corbetta, 2013; Naldi, Nordqvist, Sjöberg and Wiklund, 2007). Research effort dedicated to family businesses has demonstrated that, unlike nonfamily businesses, family businesses are typified by features such as transgenerational succession, overlapping activities between family and business matters, and nuclear family involvement in tactical and strategic formulations (Dudaroğlu, Öner and Önday, 2018). In these two contrasting business environments- i.e., a family or nonfamily firm – managers are likely to face different pressures to pursue sustainability initiatives. Indeed, the question relating to whether family firms are more sustainably oriented than nonfamily firms largely remains unanswered.

Moreover, there is ongoing debate related to how small, resource-poor firms in a developing country become environmentally sustainable in their strategic position and remain financially viable (Hart and Ahuja, 1996; Roxas, Ashill and Chadee, 2017). For instance, research suggests that managers in family firms tend to be risk averse, and mainly interested in preserving the wealth of the firm (Lumpkin and Brigham, 2011; Lumpkin, Brigham and Moss, 2010). This is likely to deter such managers from embarking on environmentally sustainable activities. Conversely, some scholarly works show that family firms have a culture that is consistent with the promotion of strategic orientation such as environmental sustainability (e.g., Zahra, Hayton and Salvato, 2004). Taken together, these studies show the need for research to clarify the relationship between ESO and firm performance in family versus nonfamily firms. In addition, the potential moderating role of firm age in the relationship between ESO and firm

performance among small to medium-sized enterprises (SMEs) has not been examined in the ESO-performance literature. Examining firm age as a moderating variable builds on research that identifies firm age as a theoretically meaningful variable in strategic orientation literature (Anderson and Eshima, 2013; Rosenbusch et al., 2011).

This investigation was motivated by the need to extend theory regarding the influence of ESO on firm outcomes. In doing so, we contribute to the ESO literature (e.g., Amankwah-Amoah et al., 2018; Moyano-Fuentes, et al., 2018; Nidumolu et al. 2009; Roxas, Ashill, and Chadee, 2017) by suggesting the adoption of ESO yields superior performance in nonfamily firms than in family firms. In addition, the results show that the influence of ESO on performance is greater in older firms but nonsignificant for new ventures. The findings from this study contribute to the literature devoted to family firms (e.g., Acquah, Amoako-Gyampah and Jayaram, 2011; Arregle, Naldi, Nordqvist and Hitt, 2012; Boling, Pieper and Covin, 2016; Kraus, Harms and Fink, 2011; Pukall and Calabrò, 2014) by suggesting that family and nonfamily firms differ enormously in the ESO performance relationship. The current study contributes to the research devoted to explaining the contingent value of firm age on strategic orientation performance relationship (Anderson and Eshima, 2013; Leonard-Barton, 1992; Rosenbusch et al., 2011) by offering insight related to how the ESO-performance relationship differs in terms of firm age.

Finally, this study complements and extends prior scholarly studies on environmental sustainability orientation (Danso et al., 2019; Eijdenberg, Sabokwigina, and Masurel, 2019; Moyano-Fuentes et al., 2018; Roxas, Ashill and Chadee, 2017) by testing the research model in an emerging country. Over the past few decades, sustainable development has attracted a growing stream of new research exploring the role of governments and their effects on firms in emerging markets. Despite this observation, we have witnessed little research on this issue focusing on family businesses in emerging economies. There also remains little research on ESO (Sung and Park, 2018) particularly in Ghana. For example, a major forum on strategy in

emerging markets noted that research on firm strategies in emerging markets has mainly focused on China (Hoskisson et al., 2000). Thus, focusing on Ghana offers an emerging market perspective to help clarify the performance benefits of ESO in family firms and nonfamily firms in emerging economies.

The remainder of the paper is organised as follows. Section 2 presents a review of prior research on ESO, sustainable development and firm performance. Section 3 describes research context and method. In section 4, we present the key findings. The final section focuses on the implications of the study.

2. Theoretical Background and Hypothesis Development

The concept of ESO has been viewed as a philosophical stance of businesses to conduct operations in an environmentally sustainable manner (Danso et al., 2019; Roxas and Coetzer, 2012). A firm demonstrates ESO via the integration of environmental-related issues into corporate culture, delivery of goods and services, decision-making, corporate strategy and overall business operations (Kuckertz and Wagner, 2010). It has been argued that different dimensions and forms of ESO may be demonstrated by different companies due to the various resources accessible to them (Sinha and Akoorie, 2010; Roxas and Chadee 2012; Roxas and Coetzer, 2012). As such, it is imperative to acknowledge the underlying conception of resource-based view (RBV) theory that the nature of the resources a firm possesses reflects on its ESO stance (Galbreath, 2005).

The RBV posits that the capability of business growth depends on the types of resources available (Wernerfelt, 1984; Barney, 1991). Barney (1991) placed greater emphasis on resources that are valuable, inimitable, rare and supported by tacit skills to achieve and sustain competitive advantage. For a firm to develop and improve its ESO paradigm, the operational impact on the natural environment needs to be inculcated in the overarching corporate strategy (Hart, 1995). Impliedly, the natural environment should also be recognised as a resource that requires tacit management skills because it is a finite resource while

embracing it as an inherent contributor to competitive advantage. Accordingly, firms must be able to develop new resources by responding to changing environmental imperatives.

2.1 The moderating role of family status

When working in either nonfamily or family firms, CEOs are likely to face different pressures to pursue ESO. Research is silent on whether family firms are more environmentally sustainable than nonfamily firms. Thus, our inclusion of family vs. nonfamily firms is informed by these reasons. The involvement or otherwise of families has been the subject of previous studies (e.g., Miller, Le Breton-Miller, Lester and Cannella, 2007; Villalonga and Amit, 2006; Dyer, 2006) as a clincher of business outcomes aside from profitability. This suggests that family involvement (from a record of family ownership, management's traceable participation over time) leads to significantly different outcomes in business policies and structure (see Chrisman et al., 2005). Despite new lines of research on family firms in competitive markets (Acquaah, 2012, 2013; Acquaah, Amoako-Gyampah and Jayaram, 2011; Jaskiewicz, Combs and Rau, 2015; Nordqvist and Melin, 2010), it remains unclear whether the pursuit of environmental sustainability can deliver positive outcomes for such organisations and how their performance compares with that of nonfamily firms. Indeed, 90% of the world's companies are family-owned businesses and such businesses are a unique characteristic of the global economy (The Economist, 2015a). In many parts of the globe, family-owned businesses are the bedrock of local and national economies. One of their hallmarks is their "familiness" (Frank, Lueger, Nosé, and Suchy, 2010; Pearson, Carr and Shaw, 2008), defined as "the unique bundle of resources a firm has because of the systems interactions between the family, its individual members, and the business" (Habbershon and Williams, 1999, p.11). Indeed, family firms possess unique features such as loyalty and trust (The Economist, 2015a) which could incentivise them to embrace environmental sustainability.

Previous studies provide some basis that family-run firms encourage entrepreneurial activities associated with strong performance (e.g., Aldrich and Cliff, 2003; Rauch et al., 2009).

Against this backdrop, we expect that family involvement or otherwise differentiates the entrepreneurial sustainability of firms, which in turn affects performance. Specifically, family-owned firms, in the pursuit of longevity, are likely to invest in economically and socially responsible projects which generate sustainable profits (see Lumpkin et al., 2010).

By concentrating power within the family, family-owned firms are better able to carry out their strategy in a speedy manner compared with nonfamily firms. Given that over 90% of businesses around the globe are family-controlled or managed (The Economist, 2015b), adopting environmentally friendly activities and policies would have greater impact in terms of incentivising other firms to follow their example. For such firms, the benefits rooted in the social ties and trust of family members must lead to full implementation of environmentally friendly strategies and associated positive outcomes. Nevertheless, nonfamily firms are not bound by family loyalty to other members. Although nonfamily firms can be riddled with internal conflict and politics, they are more likely to weed out managerial incompetence and underperformance and make appointments based on talent rather than family connection. Accordingly, nonfamily firms are likely to outperform family firms when considering ESO. This leads us to hypothesise that:

H₁: *The impact of ESO on firm performance will be stronger among family firms than nonfamily firms.*

2.2 The moderating role of firm age

The second objective of this study was to test the moderating influence of firm age on the ESO-performance linkage. Firm age was included as a moderator of this relationship because earlier research indicates that age is a neglected, yet theoretically meaningful, boundary condition on the ability of a firm to translate strategies to meaningful performance outcomes (Rosenbusch et al., 2011). According to the literature on liability of newness (Stinchcombe, 1965), new ventures have substantial shortcomings in the marketplace due to their limited experience, little or no customer base and networks, and lack of legitimacy which often comes with age. These

factors hamper their ability to acquire resources, develop ties and accordingly their market competitiveness. Another relevant theoretical lens is the liability of smallness (Stinchcombe, 1965), which can be traced to the disadvantages experienced by firms associated with their small size (Amankwah-Amoah and Debrah, 2017). Given that new-venture firms are often small and novel in the marketplace, they are affected by these dual liabilities, which curtail their ability to compete with and outsmart rivals. New firms also struggle with resources due to challenges in the environment, hence may not commit funds to ESO issues.

Past studies indicate that firm age is core a competence which underpins firms' market competitiveness (De Carolis, 2003; Leonard-Barton, 1992). The term core rigidities broadly refers to redundant and inefficient practices, processes, norms and routines (Leonard-Barton, 1992, 1995). With age, these can then hinder new product and process innovations. However, as businesses age, they often outgrow the capabilities and knowledge of the founder to manage the complexities associated with expansion (The Economist, 1996). By focusing on cultivating and nurturing personal connections and loyalty within and outside the firm (The Economist, 1996), businesses would be well-placed to be able to lock-in environmental policies and strategies. In such a situation, older firms benefit from established routines and processes that can facilitate competitive advantage in established market contexts (Leonard-Barton, 1992). However, these established routines often devolve into core rigidities, which hamper managerial willingness to pursue new entrepreneurial opportunities and adaptation to changing environmental exigencies (Leonard-Barton, 1992). Thus, newer firms are less likely to suffer succession issues and more likely to see through environmental sustainability initiatives. On the other hand, older firms are characterised by greater chance of succession issues and conflict, which can detract from any strategic initiative. Accordingly, we hypothesise that:

***H₂**: The impact of ESO on firm performance will be stronger among older firms than among younger firms.*

3. Research Method

3.1 Study setting

This study was conducted by using data obtained from firms in Ghana for several reasons. Ghana was estimated to have a population of 29 million in 2017 (World Bank, 2017). The country gained independence from British rule in 1957 and, following various decades of inward-looking economic agendas, Ghana began the implementation of free-market economic reforms in the late 1980s. Following the implementation of democratic transition in 1992, the country has become one of the vibrant democratic countries within sub-Saharan Africa. This makes Ghana one of the most ideal investment destinations in sub-Saharan Africa (World Bank, 2011). Culturally, the country is characterised by a strong social relationship (Acquaah, 2013). This relationship is undoubtedly important as it permeates many business settings within the country. In addition, the contribution of family business in Ghana in terms of income generation, job creation and economic development is enormous (Robson and Obeng, 2008). Thus, studying the conditions under which ESO is effective in driving firm performance in Ghana provides a typical emerging-market perspective on debates about how the ESO-performance differs in relation to firm age and family status.

3.2 Sample and data collection

We derived our sampling frame from Ghana Business Directory and Registrar General's Department databases. In all, these databases contained 8,950 small and medium-sized enterprises. From this list, 780 firms were contacted to ask for their participation in the study. In line with extant studies in the Ghanaian setting (e.g., Adomako et al., 2018), we ensured that firms contacted met the following criteria: (i) employed a minimum of five and a maximum of 250 full-time employees, and (ii) had an annual turnover below US\$20 million (Ghana Statistical Service, 2000). The administration of the questionnaire and collection of the data were carried out in two stages. In the first wave of the data collection (T1), all the 780 firms were contacted in person with the questionnaire. In T1, chief executive officers (CEOs) or

entrepreneurs provided responses to sustainability orientation, firm age and family firm status. Following two rounds of reminders, a total of 296 complete responses were received from the participating firms. This represents a response rate of 37.94%. To reduce potential common method variance influencing the integrity of the data (Podsakoff et al., 2003), a second stage (T2) of the data collection took place approximately 12 months after the initial data collection from these firms. This time, finance managers from the 296 firms that initially responded to the questionnaire in T1 were approached with another questionnaire to tap financial performance. A total of 265 responses were received from the finance managers. Twelve questionnaires were discarded because we detected that the CEOs/entrepreneurs were also the finance managers. Thus, we used 253 matched responses across T1 and T2. This represents a 32.43% effective response rate (i.e., $[253/780] \times 100$).

We investigated the possibility of non-response bias; the early and late responses were compared in terms of some key characteristics including firm age, size and growth rates. However, we found no significant differences between the two groups. Thus, we concluded that non-response bias did not influence the data used in this study (Armstrong and Overton, 1977).

3.3 Measure of constructs

Environmental sustainability orientation. ESO was measured with a three-dimensional scale involving knowledge, practices and commitment to environmental sustainability (Roxas et al., 2017). Knowledge of environmental sustainability was captured with five items whilst sustainable practices were measured with eight items. Commitment to environmental sustainability was measured with four items. A combined mean of the three dimensions constitutes the variable score for ESO ($\alpha=0.92$).

Family versus nonfamily status. Family versus nonfamily firm status was coded as 1= family firm and 0= nonfamily firm. Researchers have debated what constitutes a family firm over the years (Chrisman et al., 2005; Sirmon et al., 2008). In this study, a family firm is defined

as a firm in which family members influence the strategic decision-making (Sirmon et al., 2008). To identify family firms, this study followed previous research (Anderson and Reeb, 2003; Boling, Pieper and Covin, 2016) and selected firms in which the founder or one or more of his or her relatives maintain an ownership position. All other firms are designated as nonfamily.

Firm age. This study's approach to measuring firm age follows George's (2005). Accordingly, respondents were asked to indicate the number of years since the business was established. Firm age was then log transformed to normalise its distribution and then standardised before its inclusion in the regression model (Anderson and Eshima, 2013).

Firm performance. Firm performance was measured with six items ('growth in sales', 'growth in productivity', 'return on assets', 'return on sales', 'growth in market share' and 'employee growth') from previous studies (e.g., Acquah, 2007; Boso et al., 2013). Respondents were asked to rate the items relative to their competitors on a seven-point scale ranging from 1=much worse to 7=much better ($\alpha=0.89$).

Control variables. This study included four control variables that are likely to influence the research findings. These are firm size, industry, competitive intensity and prior business growth. Firm size was measured as the logarithm transformation of number of full-time employees (Sheng, Zhou and Li, 2011). Prior business growth rate was calculated as the percentage change in sales and employment between 2016 and 2018 = $[(2016/2018)-1]$ (Baum and Locke, 2004). Four items were used to capture competitive intensity ($\alpha = 0.88$) (Jansen et al., 2006). Finally, a dummy variable with '0' indicating manufacturing industry and '1' indicating otherwise was used to capture industry (Wang, 2008).

3.4 Common method variance, validity and reliability

We addressed concerns of common method variance using several approaches. First, we used Harman's (1967) one-factor test to evaluate the possibility of common method variance in our data. Based on the suggestions of Podsakoff et al. (2003), we performed a factor analysis of

the items on the performance and ESO variables. We obtained four factors with eigenvalues larger than one. In addition, the first factor accounted for about 29% of the variance. We present the results of the factor analysis of the performance and ESO variables in Table 1.

[Insert Table 1 about here]

Second, we utilised the approach suggested by Podsakoff, et al. (2003) and included a single common latent factor in the model and found the path coefficients relating to the main model remained largely the same after including this idle factor. Specifically, we obtained the following results: model without common method factor ($\chi^2/df = 2.42$, CFI = 0.98, RMSEA = 0.04, Tucker-Lewis index [TLI] = 0.95) and model with common method factor ($\chi^2/df = 2.45$, CFI = 0.96, RMSEA = 0.03, TLI = 0.95). Additionally, we found that all the items loaded more strongly on their substantive constructs than their latent common method factor.

Third, we used Lindell and Whitney's (2001) marker test method and analysed the correlation between a marker variable and the study's constructs. We chose "I enjoy finding solutions to complex problems" as a marker variable, which is a measure of intrinsic interest in entrepreneurship, thus has no theoretical relationship with any of the constructs in our model. The rest of the marker test shows nonsignificant relationships, with correlations ranging from -.02 to .04. We also found that, after considering the effect of common method bias, partial correlations between the constructs that were hypothesised to have a significant relationship were significant. To verify this claim, we performed a 95% sensitivity analysis. Overall, we believe that issues relating to common method bias have been adequately dealt with in our study.

Subsequently, we investigated the reliability and validity of each construct by performing confirmatory factor analyses (CFA) using LISREL 8.71 statistical software. The final CFA model yielded adequate fit for the data: χ^2 (degree of freedom [d.f.]) = 825.11 (482); $p < 0.00$; RMSEA = 0.04; NNFI = 0.95; and CFI = 0.94. We also found that factor loadings for

each construct are significant at 1%. This offers support for convergent validity of the measures (Bagozzi and Yi, 1988). We investigated convergent and discriminant validity using the indicators of composite reliability, average variance extracted (AVE) and highest shared variance (HSV). We inspected indices that are larger than the suggested threshold value of 0.70 for construct reliability (Bagozzi and Yi, 1988). Utilising the procedure suggested by Fornell and Larcker (1981), we assessed discriminant validity of each construct by comparing the AVE of each construct with shared variances of each pair of constructs. Results indicate that the AVE of each construct is larger than the HSV between each pair of constructs. This confirms discriminant validity. The means, standard deviations and correlations among the variables are presented in Table 2 below.

Table 1. Factor analysis for ESO and firm performance scales ^a

Scale and item	Factor 1	Factor 2	Factor 3	Factor 4
<i>Firm performance</i>				
Growth in sales	0.79	-0.02	0.21	0.11
Growth in productivity	0.84	0.04	0.20	-0.04
Return on assets	0.81	-0.03	0.12	0.06
Return on sales	0.80	0.01	0.21	0.27
Growth in market share	0.77	0.02	0.22	0.18
Employee growth	0.78	0.04	0.21	0.14
<i>Knowledge about environmental sustainability</i>				
Knowledge about climate change	0.08	0.78	0.12	0.11
Waste management issues in the city	0.04	0.89	0.14	0.07
Issues about sources of drinking water	0.02	0.90	-0.04	0.13
Issues concerning source of electricity	0.11	0.78	-0.01	0.02
Environmental protection programs	0.12	0.82	-0.05	0.11
<i>Practices of environmental sustainability</i>				
Practice recycling of wastes	-0.06	0.08	0.86	0.09
Water and electricity conservation	0.05	0.14	0.79	-0.04
Training on environmental awareness	-0.09	0.23	0.73	0.08
Participation in environmental programs	0.12	0.18	0.81	0.19
Low impact manufacturing technology	-0.11	-0.17	0.92	0.27
Communicate with customers/buyers	0.23	0.14	0.69	0.15
Deal with environment-friendly suppliers	0.15	0.19	0.77	0.19
Sustainability is an integral part of our business plans and operations	0.16	0.13	0.88	0.04
<i>Commitment to environmental sustainability</i>				
Environmental protection is part of business	0.27	-0.09	-0.04	0.77
Practices are good for my business	0.17	0.22	0.22	0.85
Gain more customers	-0.20	0.22	0.09	0.82
Proud to do business in local community	0.07	0.22	0.16	0.68
Eigenvalue	4.32	2.68	1.83	1.28

Percentage of variance explained	29.22	17.25	12.16	12.12
Cumulative percentage of variance explained	29.22	46.47	58.63	70.75

^aThe principal component analysis method with varimax rotation was utilised. Factor loadings greater than 0.40 are presented in bold font.

4. Model Estimation and Results

Prior to testing the hypotheses, this study met many assumptions. These are equality of variance, independence of the error term and the normality of the residual. We also inspected the variance inflation factors (VIFs) and found that the largest VIF was 2.11. This shows that multicollinearity among the interaction variables is within the recommended threshold value of 10 (Neter, Wasserman and Kutner, 1990).

Table 2: Descriptive statistics and correlations

	Variable	Mean	S.D	1	2	3	4	5	6	7
1.	Firm size (Employees) ^a	37.42	21.83							
2.	Industry dummy	0.79	0.41	0.04						
3.	Prior business growth	4.18	1.19	-0.02	-0.05					
4.	Competitive intensity	5.81	0.81	0.02	0.11	0.13				
5.	Family vs. nonfamily status ^b	0.43	0.47	-0.11	0.08	0.09	0.06			
6.	Firm age	22.42	15.78	0.04	0.06	0.04	0.02	0.03		
7.	ESO	5.15	.86	0.10	0.02	0.05	0.13	0.22**	0.12	
8.	Firm performance	5.32	1.14	-0.03	0.12	0.06	0.03	0.11	0.08	0.19**

^a Logarithm transformation of original variable. ^bDummy variable 0=if family; 1=nonfamily

* $p < 0.05$; ** $p < 0.01$.

We present the results of the standardised hierarchical regression used to examine the main effect variables in Table 3. Model 1 contains the control and firm performance. Model 2 includes the contingency variables. The results show that both family vs. nonfamily and younger vs. older firms impact on performance ($p < 0.05$ family vs. nonfamily firms, and $p < 0.10$ for younger and older firms). Although we did not hypothesise the effect of ESO on performance, in Model 3, ESO was significantly and positively related to performance ($p < 0.05$). This finding is consistent with previous studies (e.g., Amankwah-Amoah, Danso and Adomako, 2019; Roxas, Ashill and Chadee, 2017).

To test the moderating hypotheses, we created two interaction terms. We then used subgroup regression analysis to examine these hypotheses (Aulakh, Kotabe and Teegin, 2000; Acquah, 2007). In Table 5, we present the results of the subgroup analyses undertaken to examine the contingency hypotheses (4a-5b). Model 4 examines the effect of ESO on firm performance between family vs. nonfamily firms. The results show that the beta coefficient for the impact of ESO on firm performance was significant and positive for nonfamily firms ($\beta = 0.47, p < 0.01$) but not significant for family firms ($\beta=0.05; ns$). A *t*-test analysis shows that the coefficients are significantly different ($t = 2.28, p < 0.05$). This provides no support for Hypothesis 1. Model 5 examines the effect of ESO on firm performance between younger and older firms. The results indicate that the beta coefficient for ESO on firm performance for older firms was positive and significant ($\beta = 0.33, p < 0.01$) but nonsignificant for younger firms ($\beta=0.04; ns$). A further *t*-test analysis indicates that the coefficients are significantly different ($t = 1.81, p < 0.05$). Therefore, Hypothesis 2 is supported.

Table 3: Regression results for effect of ESO on performance and sub-group analysis of the moderating effects

Variables	Dependent variable: Firm performance (N=253)						
	Model 1	Model 2	Model 3	Model 4a	Model 4b	Model 5a	Model 5b
<i>Control variables</i>				Family firms (N=119)	Nonfamily firms (N=134)	Younger firms (N=103)	Older firms (N=150)
Firm size (log)	-0.04	-0.04	-0.05	-0.05	-0.04	-0.03	0.05
Industry dummy	0.09*	0.09*	0.08*	0.08*	0.03	0.03	0.04
Competitive intensity	0.08*	0.09*	0.10*	0.14**	-0.09*	0.14**	-0.02
Prior business growth	0.04	0.04	0.05	0.07*	-0.05	0.12*	0.02
Family vs. nonfamily		0.13**	0.14**				
Firm age		0.08*	0.09*				
ESO			0.14**	0.05	0.47***	0.04	0.33***
<i>Model fit statistics</i>							
Model <i>F</i>	2.11	5.03***	6.21***	5.12***	15.28***	4.23***	13.54***
Adjusted R ²	0.11	0.28	0.33	0.39	0.57	0.48	0.43

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

4.1 Robustness analyses

We performed additional analyses to substantiate the robustness of our findings. First, we tested firm location as moderator of the effect of ESO on performance. Accordingly, we split the sample in two: urban (large settlements with populations of 200,000–1,500,000) and rural (settlements with populations of less than 200,000). The results indicate that the impact of ESO on firm performance was significant and positive for firms located in small towns (rural) ($\beta = 0.52, p < 0.01$) but only marginally significant for larger settlements ($\beta=0.07; p < 0.10$). Second, we estimated regression models with employment growth only as the dependent variable. To capture employment growth, respondents reported at two different times on number of employees (when the firm was established and currently). We measured employment growth using a relative measure (i.e., $[t2 - t1] \div t1$) (Davidsson and Wiklund, 2000; Delmar, 1997). The results remain substantially the same: nonfamily firms ($\beta = 0.39, p < 0.01$) vs. family firms ($\beta=0.03; ns$), and older firms ($\beta = 0.34, p < 0.01$) vs. younger firms ($\beta=0.02; ns$). Third, we examined the direction of causality between ESO and performance by following Landis and Dunlap's (2000) approach. According, we used firm performance as the independent variable and ESO as the dependent variable. We then tested the interactive effect of firm age and family status on the relationship between firm performance and ESO. We found the reverse interaction terms to be nonsignificant. Thus, we concluded that reverse causality is not a concern in our data.

5. Discussion and Conclusion

The literature on ESO has mainly focused on how ESO influences firm performance (Amankwah-Amoah et al., 2019; Roxas et al., 2017). What is lacking is an attempt to explore the extent to which this relationship differs in terms of family status and firm age. Accordingly, the main objective of this study was to examine the moderating role of age and family status on the relationship between ESO and firm performance. Using time-lagged data gathered from

253 firms operating in Ghana, this study found that the impact of ESO on firm performance is amplified for nonfamily firms but not significant for family firms. Our evidence suggests the impact of ESO on firm performance is stronger among older firms than among younger ones. These findings highlight several theoretical and practical implications which are discussed in the following subsections.

5.1 Theoretical implications

In this study, we offer an explanation relating to the moderating role of firm age and family status. First, this study departs from previous research that focused on linear relationships between ESO and performance (Amankwah-Amoah et al., 2019; Roxas et al., 2017) by finding support for the theoretical explanation that the influence of ESO on firm performance is positive for nonfamily firms but nonsignificant for family firms in an emerging economy. Thus, this study found that the performance benefits of ESO are more pronounced in nonfamily firms than in family firms. A major rationale may be that family factors such as loyalty and trust appear to hamper their ability to embed routines and processes that could equip them to accrue the full benefits of sustainability orientation. This finding helps extend previous studies focusing on the effect of ESO on performance (Amankwah-Amoah et al., 2019; Roxas et al., 2017). With this finding, this study has thus linked the natural resource-based view (NRBV) perspective (Hart, 1995) with family business literature (Allen, George and Davis, 2018; Frank, Kessler, Rusch, Suess-Reyes and Weismeier-Sammer, 2017) by moving beyond the conventional assumption that greater ESO automatically generates superior firm performance. By this result, the study demonstrates that firms with greater ESO are better positioned to gain superior performance than nonfamily firms. Second, this study shows that the positive influence of ESO on firm performance is more positive for older firms but nonsignificant for younger ones. This finding indicates that the increasingly widespread view that, irrespective of firm age, ESO is beneficial for firm performance does not hold for firms operating in a developing economy. Beyond environmental factors that may influence the ESO-performance

relationship, this shows that firm age plays a key role in leveraging ESO activities to deliver superior performance. This study advances the idea that internal firm variables condition the ESO-performance relationship; that is, ESO must be properly managed within the firm in order to yield its full potential. Therefore, this study extends the literature on ESO and its benefits by demonstrating that firm age conditions the performance benefits of ESO.

5.2 Practical implications

Beyond the theoretical contributions derived from it, our study has some practical implications. First, it shows that ESO is best in predicting firm performance in nonfamily firms relative to family firms. Therefore, it is advised that managers of nonfamily SMEs pursue ESO activities as this is likely to enhance their performance. A possible explanation for why nonfamily firms do better is that the key resources and capabilities linked to family ties make it difficult for family firms to fully commit to or embrace ESO. Accordingly, partial embrace is less likely to deliver the desired results. There is therefore a need for public policy education of family businesses on how best to accrue the full benefits of ESO. Second, ESO activities are likely to be successful in older firms relative to new firms. Accordingly, this study advises managers of new firms to be cautious in pursuit of ESO in the early stages of the firms' development. Though managers cannot do anything purposeful to influence firm age, our study suggests that new ventures are less likely to reap performance benefits of ESO. An important implication for managers is therefore to learn as their firms are aging to reap the learning curve economics experience for improved managerial controls systems (Thornhill and Amit, 2003). Experience gained from ageing may help bring ESO activities into entrepreneurial action. For managers in older firms, superior performance from ESO may be a function of their ability to reap benefits from maturity while aggressively seeking to solve some of the global environmental problems inherent in the market.

5.3 Limitations and future research trajectory

Despite its theoretical and practical implications, this study has some limitations that should be taken into consideration. First, we limited the study to SMEs but there are many multinationals owned and controlled by families that could shed deeper light on this issue. Future study could look at this group of firms. Second, we employed data from a single country: small and medium-sized enterprises in Ghana. As such, the findings cannot be generalised across developed countries. We suggest that the findings should be evaluated in the context of a developing society. Thus, future studies might examine the moderating effects of family vs. non-family firms and age on the ESO-firm performance relationship in developed countries, where firms typically have more resources. Third, future studies should extend the current research by focusing on the effects of overseas operations in improving such firms' adoption of sustainability orientated activities. Finally, we suggest that future studies consider obtaining larger data sets to capture the variables under consideration. Finally, our study did not include individual-level control variables such as CEO age, gender and CEO tenure. Accordingly, future studies should include individual-level variables as controls to check if the current results will change. Overall, we hope that the new insights offered in this study will help foster new lines of research regarding ESO activities in emerging markets on firm performance on family and nonfamily firms, especially in developing economies. It is hoped that this research fosters new lines of research on different types of firms in Africa.

References

- Acquaah, M. (2007). Managerial social capital, strategic orientation, and organizational performance in an emerging economy. *Strategic Management Journal*, 28(12), 1235-1255.
- Acquaah, M. (2012). Social networking relationships, firm- specific managerial experience and firm performance in a transition economy: A comparative analysis of family owned and nonfamily firms. *Strategic Management Journal*, 33(10), 1215-1228.
- Acquaah, M. (2013). Management control systems, business strategy and performance: A comparative analysis of family and non-family businesses in a transition economy in sub-Saharan Africa. *Journal of Family Business Strategy*, 4(2), 131-146.
- Acquaah, M., Amoako-Gyampah, K., & Jayaram, J. (2011). Resilience in family and nonfamily firms: an examination of the relationships between manufacturing strategy, competitive

- strategy and firm performance. *International Journal of Production Research*, 49(18), 5527-5544.
- Adomako, S., Danso, A., Boso, N., & Narteh, B. (2018). Entrepreneurial alertness and new venture performance: facilitating roles of networking capability. *International Small Business Journal*, 36(5), 453-472.
- Aldrich, H.E., and J.E. Cliff. 2003. The pervasive effects of family on entrepreneurship: Toward a family embeddedness perspective. *Journal of Business Venturing* 18, 576–96
- Allen, M. R., George, B. A., & Davis, J. H. (2018). A model for the role of trust in firm level performance: The case of family businesses. *Journal of Business Research*, 84, 34-45.
- Amankwah-Amoah, J., & Debrah, Y. A. (2017). Toward a construct of liability of origin. *Industrial and Corporate Change*, 26(2), 211-231.
- Amankwah-Amoah, J., Danso, A., & Adomako, S. (2019). Entrepreneurial orientation, environmental sustainability and new venture performance: Does stakeholder integration matter? *Business Strategy and the Environment*, 28(1), 79-87.
- Anderson, B. S., & Eshima, Y. (2013). The influence of firm age and intangible resources on the relationship between entrepreneurial orientation and firm growth among Japanese SMEs. *Journal of Business Venturing*, 28(3), 413-429.
- Armstrong, J.S. and Overton, T.S., 1977. Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 14(3), 396-402.
- Arregle, J. L., Naldi, L., Nordqvist, M., & Hitt, M. A. (2012). Internationalization of family–controlled firms: A study of the effects of external involvement in governance. *Entrepreneurship Theory and Practice*, 36(6), 1115-1143.
- Aulakh P, Kotabe M, & Teegin H. (2000). Export strategies and performance of firms from emerging economies: evidence from Brazil, Chile, and Mexico. *Academy of Management Journal*, 43, 342–361.
- Bagozzi, R. P., & Yi, Y (1988). On the evaluation of structural equation models. *Journal of Academy of Marketing Science*, 16(1), 74–94.
- Barney, J.B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120
- Baum, J. R., & Locke, E. A. (2004). The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. *Journal of Applied Psychology*, 89(4), 587.
- Boling, J. R., Pieper, T. M., & Covin, J. G. (2016). CEO tenure and entrepreneurial orientation within family and nonfamily firms. *Entrepreneurship Theory and Practice*, 40(4), 891-913.
- Boso, N., Story, V. M., & Cadogan, J. W. (2013). Entrepreneurial orientation, market orientation, network ties, and performance: Study of entrepreneurial firms in a developing economy. *Journal of Business Venturing*, 28(6), 708-727.
- Chrisman, J. J., Kellermanns, F. W., Chan, K. C., & Liano, K. (2010). Intellectual foundations of current research in family business: An identification and review of 25 influential articles. *Family Business Review*, 23(1), 9-26.
- Chrisman, J.J., Chua, J.H., & Sharma, P. (2005). Trends and directions in the development of a strategic management theory of the family firm. *Entrepreneurship Theory & Practice*, 29(5), 555–575.
- Danso A, Adomako S, Amankwah-Amoah J, Owusu-Agyei, S., & Konadu, R. (2019). Environmental sustainability orientation, competitive strategy and financial performance. *Business Strategy and the Environment* ;1–11. <https://doi.org/10.1002/bse.2291>
- Davidsson, P., & Wiklund, J. (2000). Conceptual and empirical challenges in the study of firm growth. In D. Sexton & H. Landstrom (Eds.), *The Blackwell handbook of entrepreneurship*: 26-44. Oxford, UK: Blackwell Business.

- De Carolis, D. M. (2003). Competencies and imitability in the pharmaceutical industry: An analysis of their relationship with firm performance. *Journal of Management*, 29(1), 27-50.
- Delmar, F. (1997). Measuring growth: Methodological considerations and empirical results. In R. Donkels & A. Miettinen (Eds.), *Entrepreneurship and SME research: On its way to the millennium*: 190-216. Aldershot, UK: Ashgate.
- Delmas M, Toffel M. 2004. Stakeholders and environmental management practices: an institutional framework. *Business Strategy and the Environment* 13(4), 209–222.
- Dudaroğlu, M., Öner, M. A., & Önday, Ö. (2018). Impact of family influence on top management team in family businesses: a path-analytic study on automotive parts industry in turkey. *International Journal of Contemporary Applied Researches*, 5(3), 123-161.
- Dyer, W.G., Jr. (2006). Examining the “family effect” on firm performance. *Family Business Review*, 19, 253–273.
- Economist Intelligence Unit (EIU). (2016). The UN’s Sustainable Development Goals: Aiming high for women. London: EIU.
- Eijdenberg, E. L., Sabokwigina, D., & Masurel, E. (2019). Performance and environmental sustainability orientations in the informal economy of a least developed country. *International Journal of Entrepreneurial Behavior & Research*, 25(1), 129-149.
- Fornell, C & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research* 18(1), 39–50.
- Frank, H., Kessler, A., Rusch, T., Suess- Reyes, J., & Weismeier- Sammer, D. (2017). Capturing the familiness of family businesses: Development of the family influence familiness scale (FIFS). *Entrepreneurship Theory and Practice*, 41(5), 709-742.
- Frank, H., Lueger, M., Nosé, L., & Suchy, D. (2010). The concept of “Familiness”: Literature review and systems theory-based reflections. *Journal of Family Business Strategy*, 1(3), 119-130.
- Galbreath, J. (2005). Which resources matter the most to firm success? An exploratory study of resource-based theory. *Technovation*, 25(9), 979-987.
- George, G., (2005). Slack resources and the performance of privately held firms. *Academy of Management Journal* 48, 661–676.
- Ghana Statistical Service (2000). *Ghana Living Standards Survey: Report of the Fourth Round (GLSS4) 1998/1999*. Accra, Ghana: Standard Press.
- Habbershon, T. G., & Williams, M. L. (1999). A resource-based framework for assessing the strategic advantages of family firms. *Family Business Review*, 12, 1–25.
- Harman, H.H. (1967). *Modern Factor Analysis*. University of Chicago Press: Chicago, IL.
- Hart, S.L., 1995. A natural-resource-based view of the firm. *Academy of Management Review*, 20(4), 986-1014.
- Hart SL, Ahuja G. 1996. Does It Pay to Be Green? An Empirical Examination of the Relationship Between Emission Reduction and Firm Performance. *Business Strategy and the Environment* 5(1), 30–37.
- Hoskisson, R. E., Eden, L., Lau, C. M., & Wright, M. (2000). Strategy in emerging economies. *Academy of Management Journal*, 43(3), 249-267.
- Jansen, J.J.P., Van Den Bosch, F.A.J & Volberda, H.W. (2006). Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. *Management Science*, 52, 661–1674.
- Jaskiewicz, P., Combs, J. G., & Rau, S. B. (2015). Entrepreneurial legacy: Toward a theory of how some family firms nurture transgenerational entrepreneurship. *Journal of Business Venturing*, 30(1), 29-49.
- Kraus, S., Harms, R., & Fink, M. (2011). Family firm research: Sketching a research field.

- International Journal of Entrepreneurship and Innovation Management*, 13(1), 32–47.
- Kuckertz, A. and Wagner, M., (2010). The influence of sustainability orientation on entrepreneurial intentions—Investigating the role of business experience. *Journal of Business Venturing*, 25(5), 524-539.
- Landis, R. S. and Dunlap, W. P. (2000). Moderated multiple regression tests are criterion specific. *Organizational Research Methods*, 3(3), 254-266.
- Leonard-Barton, D. (1992). Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal*, 13, 111–126.
- Leonard-Barton, D. (1995). *Wellsprings of knowledge*. Boston, MA: Harvard Business School Press.
- Lindell, M. K. and Whitney, D. J. (2001). Accounting for common method variance in cross sectional research designs. *Journal of Applied Psychology*, 86(1), 114.
- Liu C-L, Ghauri PN, Sinkovics RR (2010). Understanding the impact of relational capital and organizational learning on alliance outcome. *Journal of World Business* 45(3), 237–49
- Lumpkin, G. & Brigham, K.H. (2011). Long-term orientation and intertemporal choice in family firms. *Entrepreneurship Theory & Practice*, 35(6), 1149–1169.
- Lumpkin, G.T., Brigham, K.H., & Moss, T.W. (2010). Long-term orientation: Implications for the entrepreneurial orientation and performance of family businesses. *Entrepreneurship & Regional Development*, 22(3/4), 241–264.
- Miller, D., Le Breton-Miller, I., Lester, R.H. and Cannella, A.A. (2007). Are family firms really superior performers? *Journal of Corporate Finance*, 13(5), 829–858.
- Miller, D., Minichilli, A., & Corbetta, G. (2013). Is family leadership always beneficial? *Strategic Management Journal*, 34(5), 553–571.
- Moyano-Fuentes, J., Maqueira-Marín, J. M., and Bruque-Camara, S. (2018). Process innovation and environmental sustainability engagement: An application on technological firms. *Journal of Cleaner Production*, 171, 844-856.
- Naldi, L., Nordqvist, M., Sjöberg, K., & Wiklund, J. (2007). Entrepreneurial orientation, risk taking, and performance in family firms. *Family Business Review*, 20(1), 33–47.
- Neter J, Wasserman W, & Kutner MH. (1990). *Applied Linear Statistical Models* (3rd edn). Irwin: Homewood, IL.
- Nidumolu, R., Prahalad, C. K., & Rangaswami, M. R. (2009). Why sustainability is now the key driver of innovation. *Harvard Business Review*, 87(9), 56–64
- Nordqvist, M., and Melin, L. (2010). Entrepreneurial families and family firms. *Entrepreneurship and Regional Development*, 22(3-4), 211-239.
- Pearson, A. W., Carr, J. C., & Shaw, J. C. (2008). Toward a theory of familiness: A social capital perspective. *Entrepreneurship Theory and Practice*, 32(6), 949-969.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., & Podsakoff, N.P. (2003). Common method bias in behaviour research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903.
- Pukall, T. J., and Calabrò, A. (2014). The internationalization of family firms: A critical review and integrative model. *Family Business Review*, 27(2), 103-125.
- Quan, Y., Wu, H., Li, S., and Ying, S. X. (2018). Firm sustainable development and Stakeholder engagement: The role of government support. *Business Strategy and The Environment*, 27(8), 1145-1158.
- Robson, P.J. and Obeng, B.A., 2008. The barriers to growth in Ghana. *Small Business Economics*, 30(4), 385-403.
- Rosenbusch, N., Brinckmann, J., Bausch, A., (2011). Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs. *Journal of Business Venturing* 26(4), 441–457.

- Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, 33(3), 761–787.
- Roxas, B., Ashill, N., and Chadee, D. (2017). Effects of entrepreneurial and environmental sustainability orientations on firm performance: A study of small businesses in the Philippines. *Journal of Small Business Management*, 55, 163-178.
- Roxas, B., & Coetzer, A. (2012). Institutional environment, managerial attitudes and environmental sustainability orientation of small firms. *Journal of Business Ethics*, 111(4), 461–476.
- Sheng, S., Zhou, K. Z., and Li, J. J. (2011). The effects of business and political ties on firm performance: Evidence from China. *Journal of Marketing*, 75(1), 1–15.
- Sirmon, D.G., Arregle, J., Hitt, M.A., & Webb, J.W. (2008). The role of family influence in firms' strategic responses to threat of imitation. *Entrepreneurship Theory & Practice*, 32(6), 979–998.
- Stinchcombe, A. L. (1965), 'Social Structure and Organizations,' in J. G. March (ed.), *Handbook of Organizations*. Rand McNally: Chicago, 142–193.
- Sung, C. S., & Park, J. Y. (2018). Sustainability Orientation and Entrepreneurship Orientation: Is There a Tradeoff Relationship between Them? *Sustainability*, 10(2), 379.
- The Economist (1996). Fissiparous fortunes and family feuds. 341(7994), 63-64.
- The Economist (2015a). To have and to hold; to come. 415(8934), 3-5.
- The Economist (2015b). Dynasties; The power of families. 415(8934), 9.
- The Economist (2016). Family values; Schumpeter. 420(9003), 58.
- Thornhill, S., and Amit, R., (2003). Learning about failure: bankruptcy, firm age, and the resource-based view. *Organization Science* 14(5), 497–509.
- United Nations (2015). *The Millennium Development Goals Report*. New York: UN.
- United Nations (2018). *The Sustainable Development Goals Report 2018*. New York: UN.
- Villalonga, B. and Amit, R., 2006. How do family ownership, control and management affect firm value? *Journal of financial Economics*, 80(2), 385-417.
- Wang, C. L. (2008). Entrepreneurial orientation, learning orientation, and firm performance. *Entrepreneurship Theory and Practice*, 32(4), 635-657.
- Wernerfelt, B., 1984. A resource- based view of the firm. *Strategic Management Journal*, 5(2), 171-180.
- World Bank, (2011). *The Little Data Book on Africa 2011*. Washington DC: World Bank.
- World Bank (2016). *World Development Report 2016: Digital Dividends*. World Bank Publications.
- World Bank (2017). Population Total. Available at <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=GH> (Accessed 20/01/2019)
- World Bank (2019). *World Development Report: The changing nature of work*. Washington: International Bank for Reconstruction and Development/World Bank.
- You, K., Dal Bianco, S., Lin, Z., & Amankwah-Amoah, J. (2018). Bridging technology divide to improve business environment: Insights from African nations. *Journal of Business Research*, 97, 268-280.
- Zahra, S.A., Hayton, J.C., & Salvato, C. (2004). Entrepreneurship in family vs. non-family firms: A resource-based analysis of the effect of organizational culture. *Entrepreneurship Theory & Practice*, 28(4), 363–381

