

## Article

# Revisiting the Accelerated Internationalization of Emerging Market SMEs: The Roles of Firms' Collaborations and Environmental Management Practices

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**Abstract:** Although the performance implications of inter- and intra-firm collaborations have been discussed by prior studies, how such collaborations can drive the accelerated internationalization of small and medium-sized enterprises (SMEs) originating from emerging markets remains unclear. This study was, thus, aimed at shedding light on this relationship by drawing insights from the resource-based view (RBV). We argued that the interaction between inter- and intra-firm collaborations can drive accelerated internationalization through environmental management practices. We, thus, developed and tested a conceptual framework by performing structural equation modeling on a sample of 208 SMEs based in the United Arab Emirates (UAE). Our findings reveal that the interaction between inter- and intra-firm collaborations is indeed conducive to accelerated internationalization. More importantly, we found that environmental management practices mediate the relationship between such interaction and accelerated internationalization. Our findings have important implications for international entrepreneurship research and practice in relation to how environmental management practices can enhance such a relationship.

**Keywords:** intra-firm collaboration; inter-firm collaboration; environmental management practices; accelerated internationalization; SMEs; emerging markets



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## 1. Introduction

Growing competition and dynamic customer needs are forcing small and medium-sized enterprises (SMEs) to pursue accelerated internationalization to survive and grow [1–3]. SMEs are increasingly becoming engaged in international business activities [4,5] with the expectation that their internationalization efforts will enable them to gain first-mover advantages, to access global niche places, and to exploit any emerging international opportunities [6,7]. Therefore, the concept of accelerated internationalization has become a key strategic option to access international markets [8,9]. Focusing on the pre-internationalization phase [10], we defined accelerated internationalization as “the time lag between the founding of a firm and its initiation of international operations” [11]. The length of such a time lag does have significant implications for SME competitiveness, growth, and survival.

The extant research on the pre-internationalization phase of firms has considered the drivers of accelerated internationalization [12–14]. For example, previous studies have identified a relationship between the accelerated internationalization and strategic orientations of firms [15], and the ability of firms to assess international opportunities [16]. A burgeoning research stream has highlighted the importance of inter-firm collaboration—associated with actors outside the boundaries of a firm, including customers, suppliers, and

competitors [17,18]—to a firm’s competitiveness and growth. Thus, forging inter-firm collaborations can help resource-constrained SMEs to identify global business opportunities, select target markets, and effectively venture abroad [19]. Moreover, inter-firm collaboration (e.g., with internalizing firms) can provide access to foreign market knowledge and learning [20], thereby accelerating the internationalization of SMEs [21,22]. While inter-firm collaboration may stimulate the flow of information and knowledge into SMEs [23,24], its impact on accelerated internationalization will be weaker if and when it is separated from knowledge accumulation inside the firm [25]. In particular, intra-firm collaboration—i.e., cooperation among employees and functional departments to collect and synthesize market information [26]—may be vital in order to integrate external partner knowledge to drive accelerated internationalization. For example, there is evidence that intra-firm collaboration promotes communication and coordination, facilitating the sharing of information and the alignment of goals across business functions [27,28]. In the accelerated internationalization context, intra-firm collaboration provides the *“expertise of employees from different functions and their all-inclusive perspectives to facilitate the firm’s effectiveness in responding to changes in export environments”* [29].

Indeed, the international business literature suggests that inter- and intra-firm collaboration individually drive SME internationalization behaviors [24,26,29], including accelerated internationalization [12]. Despite our awareness that firms sometimes engage in inter- and intra-firm collaboration at the same time [30,31], the existing research has previously overlooked the extent to which such forms of collaboration align to jointly drive the accelerated internationalization of SMEs. While inter-firm collaboration provides access to any tacit knowledge possessed by external partners, intra-firm collaboration enable the effective absorption and internal communication of external knowledge and across a firm [32]. Therefore, by leveraging the complementarity between inter- and intra-firm collaboration, SMEs can gain knowledge and achieve rapid entries into foreign markets. Against this backdrop, a pertinent research objective was to explore the process and conditions whereby inter- and intra-firm collaboration align to affect accelerated internationalization (Zahoor et al., 2020). The importance of addressing this gap in the extant international entrepreneurship research stems from the fact that variation in SME accelerated internationalization might be due to (1) a firm’s synergistic use of inter- and intra-firm collaboration, and (2) a firm’s single use of these collaboration activities [33]. Addressing this apparent conundrum holds significant research implications for international business and lessons for venture management.

Accordingly, this study drew on the resource-based view (RBV) to explain the link between the interaction of inter- and intra-firm collaboration and SME accelerated internationalization. We argued that the simultaneous pursuit of inter- and intra-firm collaboration has implications for emerging strategic choices (in the international business literature) such as environmental management practices. Our choice of environmental management practices is evidenced by recent interest in collaboration relationships and environmental management (e.g., [34–36]), as these concepts hold promise in strategy and sustainability research. In particular, there is evidence that firms need to pursue environmental management practices for international expansion [37,38]; yet, there is a paucity of evidence in regard to how this can be achieved [39]. Environmental management practices consist of *“corporate environmental practices beyond the requirements of environmental regulations and standard actions in order to reduce the environmental impact of their operations”* [37]. Particularly in the dynamic global environment, which features intense competition and technological dynamism, SMEs need to pursue environmental management practices that are appealing and relevant to the experiences of their stakeholders in order to compete in their domestic and international markets [40,41]. Following on from the tenets of the RBV [42], we posited that inter- and intra-firm collaboration interaction is a valuable, rare, non-imitable, and non-substitutable resource that promotes environmental management practices and, in turn, results in SME accelerated internationalization. We set our research question as follows: *“How do inter- and intra-firm collaboration interact to drive SME accelerated internationalization*

*through environmental management practices?"* To answer this question, we collected survey data from internationalizing SMEs operating in the fairly emerging market of Dubai, United Arab Emirates (UAE).

This study makes several contributions to the literature. First, it advances research on inter- and intra-firm collaboration [30,32] by showing that the complementarity between inter- and intra-firm collaboration promotes the environmental management practices of SMEs. In line with the RBV arguments, this study shows that complementary resources (i.e., inter- and intra-firm collaboration) are central to driving environmental management practices. Second, it provides insights into the significance of environmental management practices [37] by showing that the interaction effect of inter- and intra-firm collaboration on accelerated internationalization is mediated by environmental management practices. Specifically, our model explains how the synergy between the inter- and intra-firm collaboration accounts for significant variations in SME engagement in environmental management practices for an onward effect on accelerated internationalization. Third, this study's empirical contribution stems from its unique context, i.e., the business landscape of the UAE, which is characterized by socioeconomic and cultural conditions that differ significantly from those found in Western economies and businesses. Hence, our findings further enrich the current discourse in terms of their contextual contributions to the international business literature.

## 2. Theoretical Background and Hypotheses

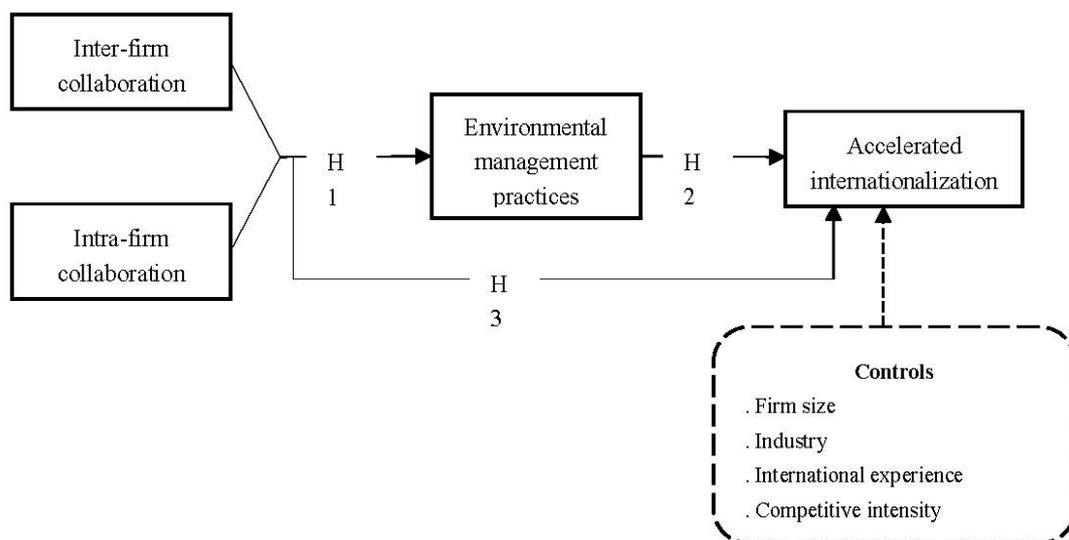
The RBV asserts that the competitive advantage of a firm originates from its valuable and rare resources [42,43]. Firms are viewed as bundles of resources that are heterogeneously distributed and imperfectly mobile [42]. These resources include patents, trademarks, financial capital, brand name, reputation, valuable knowledge, organizational culture, collaborative networks, and joint learning [44,45]. A firm can combine these resources to gain a competitive advantage in the market. More importantly, given the immobility of resources, a firm can achieve superior performance by sustaining across-firm resource heterogeneity [46]. Therefore, in accordance with the RBV [42,43], intra-firm collaboration represents an important resource that provides a competitive advantage by facilitating interaction among different functions and integrating knowledge. The extended RBV suggests that resources reside in external collaborative relationships. As argued by Lavie [47], an "interconnected firm can extract value from resources that are not fully owned or controlled by its internal organization" (p. 639). Therefore, inter-firm collaboration can be viewed as a valuable resource suited to access external information and knowledge to create a competitive advantage [48].

Prior RBV studies claimed that competitive advantage is accrued not from individual resources, but from their integration [49,50]. Resource complementarity, or the influence of one resource on another, is argued to enhance a firm's competitive advantage [51]. Specifically, the combination of different resources enhances the relative value of each by creating a synergy effect that is "*greater than what each of them would deliver individually*" [52]. We, therefore, argue that inter- and intra-firm collaborations are important complementary resources for the competitive advantage of SMEs. Particularly, inter-firm collaboration helps SMEs to overcome their liability of smallness by enabling them to access the financial and knowledge resources of their network partners [53]. On the other hand, intra-firm collaboration provides a significant range of ideas, learning, and improvements suited to aid competitive positioning [54].

While the RBV is a prominent theoretical perspective in strategy and international business research, it has hitherto remained limited (to a certain extent) due to an inadequate conceptual focus and the over-equating of resource availability with competitive advantage [55]. To this end, research underscores the need to examine the processes, actions, and capabilities that can translate complementary resources into performance [56]. In this study, we were interested in how complementary resources (i.e., inter- and intra-firm collaborations) lead to capabilities (i.e., environmental management practices) and, in turn, how

they impact performance outcomes (i.e., accelerated internationalization). In particular, the interaction between inter- and intra-firm collaboration influences the progress of capability in the form of environmental management practices. Such practices include “*techniques, procedures, and policies which are aimed at monitoring and reducing the negative impacts on the natural environment. They also include taking note of environmental considerations when designing new products or developing new processes, adopting advanced technologies to use/reuse/recycling of resource and energy, and implementing environmental management programs*” [57]. Developing environmental management practices can, thus, help SMEs to integrate the interests of their stakeholders [58,59]—including consumers—and to build solid reputations suited to promote accelerated internationalization [37,60].

Figure 1 illustrates the conceptual model of this study. Grounded in the tenets of the RBV, it shows the linkages among inter- and intra-firm collaboration interaction, environmental management practices, and accelerated internationalization. Our conceptual model is based on the idea that, in order to translate the benefits of inter- and intra-firm collaboration complementarity into accelerated internationalization, an SME must consider pursuing environmental management practices. We discuss these broad propositions and present the testable hypotheses we developed in support of the proposed model.



**Figure 1.** Conceptual framework.

### 2.1. Inter-Firm Collaboration, Intra-Firm Collaboration, and Environmental Management Practices

Following collaboration and environmental management research (e.g., [34–36]), we posited the joint effect of inter- and intra-firm collaboration on SME environmental management practices. Collaboration refers to “*close, functionally interdependent relationships characterized by mutual influence, open and direct communication, support for innovation and experimentation, and a goal of creating beneficial outcomes for all participants*” [61]. In this context, inter-firm collaboration is a voluntary cooperative arrangement between external partners to share knowledge and develop capabilities [62]. By contrast, intra-firm collaboration concerns the interaction and coordination that occurs among internal firm members/functional units in order to share knowledge and apply market information [26]. Thus, while inter-firm collaboration deals with the accumulation of knowledge residing outside organizational boundaries, intra-firm collaboration describes the acquisition and utilization of knowledge from other organizational units [63,64].

Inter- and intra-firm collaboration can be seen as sources of capability development [46,56]. Prior research showed that both inter- and intra-firm collaboration are likely to promote environmental management practices [65,66]. Typically, research documents inter- and intra-firm collaboration as separate determinants of environmental initiatives and strategies. However, how SMEs can develop environmental management practices from the

synergies of inter-firm and intra-firm collaboration is less clear. We argued that combinative resources—i.e., the interaction between inter- and intra-firm collaboration—will enhance SME environmental management practices.

First, inter-firm collaboration is vital for SME environmental management practices [67]. External partners provide SMEs with opportunities to overcome any barriers to the implementation of environmental initiatives stemming from their resource constraints and other characteristics (e.g., absorptive capacity) [68,69], thus potentially leading to an improvement in environmental management practices. Likewise, intra-firm collaboration enables SMEs to align their organizational goals in response to stakeholders' expectations [70], which catalyzes them to pursue environmental management practices [71]. Therefore, SMEs that frequently engage in inter- and intra-firm collaboration activities possess a greater ability to improve their social reputation due to environmental management practices.

Second, the interaction of inter- and intra-firm collaborations acts as a learning platform suited to promote environmental management practices [57]. When SMEs exchange resources and knowledge with external partners, they need internal coordination mechanisms to integrate and utilize such resources for environmental initiatives [72]. In contrast, intra-firm collaboration encourages internal interactions in order to exchange knowledge that can also improve the efficiency of SME inter-firm collaboration, thereby leading to enhanced environmental management practices. Thus, the optimal way to develop environmental management practices is to align inter- and intra-firm collaborations.

Thus, we contended that inter- and intra-firm collaborations are complementary and that, together, they can enhance SME environmental management practices. Put differently, those SMEs that align their inter- and intra-firm collaboration will achieve more enhanced environmental management practices than those that focus on either their inter- or intra-firm collaboration. Thus, we propose the first hypothesis.

**Hypothesis 1.** *The interaction of inter- and intra-firm collaboration is positively related to SME environmental management practices.*

## 2.2. Environmental Management Practices and Accelerated Internationalization

Environmental management practices are process-focused, exploit environmentally friendly materials, and adopt environmentally oriented technologies to improve production [57]. These practices are beneficial in that they reduce waste, eliminate the usage of toxic materials, adopt technologically efficient equipment, and reduce pollution in production processes [73]. When SMEs seek environmental management practices, they can innovate and attain a competitive advantage by establishing industry standards that act as entry barriers for potential new entrants [74]. Importantly, SMEs that seek environmental management practices can exploit international market opportunities through accelerated internationalization [39,75]. Similarly, when SMEs perceive similar institutional characteristics in their domestic and international markets [37], they can use environmental management practices to build organizational reputation, gain legitimacy within both host and domestic stakeholders, and attain higher customer satisfaction [38]. Specifically, SMEs with stronger environmental management practices show great commitment to environmental concerns [40], become more visible and gain recognition as environmentally friendly firms [76], and ultimately enhance their accelerated internationalization [41]. By implementing environmental management practices, SMEs can respond to stakeholder demands, enhance their legitimacy, and respond to barriers in entering international markets [77], ultimately promoting accelerated internationalization.

**Hypothesis 2.** *Environmental management practices are positively related to SME accelerated internationalization.*

### 2.3. The Mediating Role of Environmental Management Practices

Integrating the logic of the arguments presented above, we expect complementarity between inter- and intra-firm collaboration to positively drive environmental management practices, which, in turn, would lead to accelerated internationalization. Differently put, we suggest a mediated relationship between inter- and intra-firm collaboration interplay, environmental management practices, and accelerated internationalization. Inter-firm collaboration offers SMEs an opportunity to learn from external partners about environmentally friendly products and processes [65], whereas intra-firm collaboration enables them to internalize any valuable knowledge and translate it into environmentally friendly norms [78]. While inter-firm collaboration may elicit learning and initial environmental responses, the level of practical responses to these pressures is influenced by intra-firm collaboration [79,80]. Particularly, the synergy between inter- and intra-firm collaboration promotes valuable learning and expands the dynamic capabilities (i.e., advanced environmental management practices) needed to handle environmental challenges [81].

Consistent with the RBV, environmental management research highlights that inter- and intra-firm collaboration enable SMEs to obtain capabilities that are unique and inimitable [82–84]. These capabilities are considered as a source of sustainable competitive advantage and improved performance [39]. Specifically, integrative learning within collaborative relationships (i.e., inter- and intra-firm interaction) can not only reduce any environmental waste [71,85], but also yield environmental friendly products and processes that are a source of operational effectiveness [86,87]. Accordingly, environmental management practices enable SMEs to comply with the varied environmental regulations found in different foreign markets [39]. Furthermore, SMEs with environmental management practices can meet the environmental and social standards that facilitate their licensing and legitimacy building in foreign countries [37,88], thereby stimulating accelerated internationalization [89,90].

Hence, we argue that the synergy between inter- and intra-firm collaboration promotes environmental management practices, thereby leading to SME accelerated internationalization. Stated differently, we expect environmental management practices to mediate the relationship between inter- and intra-firm collaboration interplay and accelerated internationalization. Thus, we propose the final hypothesis.

**Hypothesis 3.** *Environmental management practices mediate the joint effect of inter- and intra-firm collaboration on accelerated internationalization.*

## 3. Methodology

### 3.1. Context and Data Collection

We tested our hypotheses on a sample of SMEs operating in the UAE for two reasons. First, the UAE has received substantial press attention due to its economic transformation (U.AE, 2021). In its efforts to move away from an oil-based economy, the country has witnessed growth in other industries, including tourism, retail, pharmaceutical, and chemical. This offered a unique opportunity to investigate the implications of Western theories in the context of emerging markets. Second, the orientation toward an open economy has led to a dominance of privately business. According to U.AE (2021), SMEs accounts for 99% of businesses in the country, employ 42% of the workforce, and contribute 42% to the gross domestic product (GDP). Third, UAE SMEs have gained significant internationalization levels due to their presence in neighboring markets in the Middle Eastern region [91]. This economic outlook makes it imperative to investigate how complementarity between inter- and intra-firm collaborations leads to accelerated internationalization via environmental management practices.

We used the Commercial Directory of the Dubai Chamber of Commerce and Industry as a sampling frame [92]. To select our study's sample, we adhered to the following criteria: (1) firms that were independent and privately owned; (2) firms that were not part of any

bigger group, (3) firms employing fewer than 250 employees; (4) firms that had engaged in cross-border activities for at least 3 years.

The above sampling criteria led to the identification of 386 firms. The data were collected using the drop-off and collection technique [93,94], which is prominent in developing and emerging markets [91,95] given the reduced response rates typical of these countries. The selected informants were owners/founders or senior managers in SMEs. We deemed these informants more appropriate as they make key decisions in SMEs. All respondents provided their consent to take part in our study and were informed that they could withdraw from the study at any time. After visits to the companies, a total of 208 completed questionnaires were received, equivalent to a 53.89% response rate. We further assessed the competency of our informants on a seven-point Likert scale in terms of (1) their knowledge of the issues under considerations, (2) the accuracy of the provided information, and (3) their confidence in the answers provided. The results of this competency test revealed a minimum mean score of 6.12, suggesting that our respondents were indeed knowledgeable.

The survey respondents were classified into two main categories. Managers, owners, and/or CEOs constituted 67.7% of the respondents, while the remaining 32.3% constituted international sales, finance, or marketing managers. The average size of our sample firms was 87 employees. Most of our respondent firms (57%) were exporting to countries in the Gulf Cooperation Council (GCC), i.e., Saudi Arabia, Qatar, Oman, Bahrain, and Kuwait. Outside the GCC, the other export destination countries of our sample were India, Iran, Japan, South Korea, China, Nigeria, Jordan, and the United States, along with a small number of firms exporting to European countries such as Switzerland, Italy, and the United Kingdom.

### 3.2. Measurements

We adapted the measures of our study's variables from previous studies. We conducted a pilot study with the CEOs of some of our sample SMEs to refine the measurement items and the wording of the questionnaire, where necessary. Accordingly, wordings, items, and phrases were improved to reflect the study's context.

#### 3.2.1. Dependent Variable

Accelerated internationalization was the dependent variable of this study. It was operationalized as the elapsed time (in years) between the year of each firm's founding and the year of its first international sales [12].

#### 3.2.2. Independent Variables

The study considered two independent variables, inter-firm collaboration and intra-firm collaboration. To capture inter-firm collaboration, we adapted four items from Schleimer and Faems [30]. The respondents were asked to evaluate the extent to which their respective firms had sought information and knowledge from external partners. Intra-firm collaboration considered the extent to which information was exchanged within each sample firm. Three items were adapted from Narver and Slater [96] and Schleimer and Faems [30].

#### 3.2.3. Mediating Variable

The mediating variable, environmental management practices, was measured using four items adapted from Tatoglu et al. [97] and Wijethilake [98]. The respondents were asked to report the extent to which their respective firms had adopted environmental management practices.

#### 3.2.4. Control Variables

In line with previous international business and strategy research [15,99], we included relevant firm and industry-level control variables in the study. These included firm size, managerial international experience, industry, competitive intensity, and technological

turbulence. Firm size was measured as the number of full-time employees, and managerial international experience was measured as the number of years spent working internationally. The natural logarithms of both variables were taken to correct for skewness. For industry type, a dummy variable was used as manufacturing (1) and services (2). To measure competitive intensity and technological turbulence, scales were adapted from Jaworski and Kohli [27]. All multi-item variables were anchored on a seven-point Likert scale. Table 1 provides the details of the measurement items with their respective factor loadings, and the reliability and validity results.

**Table 1.** The measurement details, reliability, and validity of the study's variables.

Measurement Items	Standardized Factor Loadings
<b>Inter-firm collaboration (CA = 0.88; CR = 0.91; AVE = 0.72)</b>	
Seeks advice and counsel from external partners.	0.80
Plans activities with the external partners.	0.88
Receives and uses suggestions from external partners.	0.83
Shares proprietary information with external partners.	0.87
<b>Intra-firm collaboration (CA = 0.92; CR = 0.92; AVE = 0.80)</b>	
Cross-functional collaboration in strategic planning.	0.87
Utilization of integrated database for information sharing.	0.94
Sharing of operations information among departments.	0.87
<b>Environmental management practices (CA = 0.91; CR = 0.91; AVE = 0.72)</b>	
Reusing/recycling waste materials.	0.78
Increasing emphasis on improving eco-efficiency in production.	0.86
Minimizing the environmental consequences of products and services.	0.92
Using renewable energy and resources in the supply chain.	0.84
<b>Competitive intensity (CA = 0.88; CR = 0.88; AVE = 0.71)</b>	
Competition is cutthroat.	0.82
Anything that my company can offer, another company can match readily.	0.88
We hear of new competitive move in terms of opportunity discoveries every day.	0.82
Our competitors are very strong in discovering new opportunities as well.	
<b>Technological dynamism (CA = 0.88; CR = 0.89; AVE = 0.66)</b>	
Technology in our industry is changing rapidly.	0.87
Technological changes provide big opportunities in terms of new product/process introductions.	0.83
It is very difficult to predict new technologies in our industry.	0.88
Several new product/services have been made possible through technological breakthroughs in our industry.	0.70
<b>Accelerated internationalization (CA = -; CR = -; AVE = -)</b>	
When did your company first make any sales abroad? When was this company founded?	-
<b>Fit indices:</b> $\chi^2/DF = 1.09$ ; CFI = 0.99; NFI = 0.93; RMSEA = 0.02; SRMR = 0.04.	

## 4. Analysis

### 4.1. Measurement Model Assessment

To assess the reliability and validity of multi-item constructs, we performed confirmation factor analysis (CFA) using the AMOS statistical software package. Following Bagozzi and Yi [100] and Kline [101], we used various model fit indices to evaluate the appropriateness of our proposed measurement model. The results of the CFA suggested an acceptable model fit to the data:  $\chi^2/DF = 1.08$ ; CFI = 0.99; GFI = 0.95; RMSEA = 0.02; SRMR = 0.04. As shown in Table 1, the standardized factor loadings were found to be significant ( $p < 0.001$ ), and the minimum and maximum factor loadings were found to be 0.70 and 0.95, respectively. In support of construct reliability, the values of Cronbach's alpha and composite reliability were found to exceed the required thresholds of 0.70 and 0.60, respectively. Discriminant validity was assessed on the basis of the recommendations made by Fornell and Larcker [102]. The squared average variance extracted (AVE) and the correlation coefficients were compared to determine whether the squared AVE for each construct exceeded the correlation between each pair of constructs. From Table 2, it is

evident that the squared AVE for each construct was found to be greater than the correlation between the respective pair of constructs, thereby confirming discriminant validity. Lastly, with each of the AVEs exceeding the required benchmark of 0.50 [100], we were able to claim to have achieved convergent validity.

**Table 2.** Descriptive statistics and correlations.

Variables	Mean	S.D.	1	2	3	4	5	6	7	9	10
1. Firm size #	4.07	1.02									
2. Industry $\beta$	1.89	0.83	0.11								
3. International experience #	0.76	0.19	−0.05	0.01							
4. Competitive intensity	4.61	1.65	0.08	−0.07	−0.03	<b>0.84</b>					
5. Technological dynamism	4.95	1.44	0.03	−0.03	0.08	−0.18 **	<b>0.81</b>				
6. Inter-firm collaboration	4.99	1.27	−0.13 +	0.00	0.19 **	−0.016 *	0.19 **	<b>0.85</b>			
7. Intra-firm collaboration	4.48	1.70	0.03	−0.06	0.03	0.13 +	0.08	0.31 ***	<b>0.89</b>		
8. Environmental management practices	5.26	1.38	0.04	−0.10	0.11	0.08	0.15 *	0.15 *	0.34 ***	<b>0.85</b>	
9. Accelerated internationalization	7.37	3.25	0.11	−0.05	0.15 *	0.25 ***	−0.02	−0.08	0.05	0.24 ***	

Notes: +  $p < 0.10$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ . # Natural logarithm transformation of the original values; M = mean; SD = standard deviation;  $\beta$  = dummy variable; square root of AVEs in diagonal.

#### 4.2. Common Method Bias Assessment

Due to the cross-sectional nature of our study, common method bias (CMB) could potentially have been a concern. Therefore, we adopted both ex ante and ex post remedial procedures to reduce the potential effect of any CMB. First, by following the suggestion made by Podsakoff et al. [103], we applied ex ante measures to the questionnaire design process. These included (1) ensuring respondents in regard to confidentiality, (2) counterbalancing the order of questions, (3) avoiding double-barreled questions, and (4) avoiding the use of complex concepts. Second, we followed ex post statistical procedures to test for the presence of CMB [104,105]. In this regard, three competing CFA models were estimated. In model 1, a method-only model was estimated, with all the items being loaded onto a single latent construct:  $\chi^2/DF = 12.96$ ; CFI = 0.41; GFI = 0.56; RMSEA = 0.24; SRMR = 0.22. In model 2, a trait-only model was estimated, with each item loading onto its respective latent construct:  $\chi^2/DF = 1.08$ ; CFI = 0.99; GFI = 0.95; RMSEA = 0.02; SRMR = 0.04. In model 3, a method-trait model was estimated, with models 1 and 2 being assessed together:  $\chi^2/DF = 1.03$ ; CFI = 0.99; GFI = 0.95; RMSEA = 0.01; SRMR = 0.03. The comparison of these three models indicated that models 2 and 3 were superior to model 1, and that model 3 was not substantively better than model 2. Thus, we could assume that CMB was not affecting the findings of this study.

#### 4.3. Structural Model Estimation

We used structural equation modeling and the path analysis technique to test the hypothesized relationships. The independent variables were mean-centered to compute the product term. This approach helps to reduce the issue of any multicollinearity that may characterize a study's results. In all, six nested models were estimated. Model 1 estimated the effect of the control variables on environmental management practices. In model 2, we estimated the effects of inter- and intra-firm collaboration, and of their interaction on environmental management practices. Model 3 shows the effects of the control variables on accelerated internationalization. Model 4 shows the effect of environmental management practices on accelerated internationalization. In model 5, we estimated the joint effects of inter- and intra-firm collaboration on accelerated internationalization. Lastly, model 6 estimated the joint effect of inter- and intra-firm collaboration and of environmental

management practices on accelerated internationalization. Table 3 presents the results of our estimations.

**Table 3.** Results of the structural analysis.

	Environmental Management Practices			Accelerated Internationalization		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<b>Control paths</b>						
Firm size #	0.06 (0.84)	0.05 (0.69)	0.11 (1.60)	0.09 (1.40)	0.10 (1.55)	0.09 (1.44)
Industry $\beta$	−0.08 (−1.19)	−0.06 (−0.92)	−0.03 (−0.38)	−0.01 (−0.18)	−0.01 (−0.19)	−0.01 (0.19)
International experience	0.10 (1.41)	0.10 (1.43)	0.17 * (2.58)	0.14 * (2.15)	0.18 ** (2.78)	0.16 ** (2.50)
Competitive intensity	0.08 (1.12)	0.00 (0.01)	0.26 *** (3.40)	0.25 ** (2.95)	0.26 *** (3.28)	0.26 *** (3.37)
Technological dynamism	0.15 * (2.04)	0.10 (1.44)	0.02 (0.25)	−0.01 (−0.15)	0.02 (0.31)	−0.01 (0.05)
<b>Main paths</b>						
Inter-firm collaboration (IEFC)		0.13 (1.64)			0.02 (0.22)	−0.01 (0.03)
Intra-firm collaboration (IAFC)		0.31 *** (4.25)			0.01 (0.18)	−0.07 (−0.89)
IEFC*IAFC		0.24 ** (3.12)			0.16 * (2.16)	0.12 (1.63)
Environmental management practices				0.20 ** (2.95)		
<b>Mediating path</b>						
Environmental management practices						0.19 ** (2.63)
<b>Fit indices</b>						
$\chi^2/DF$	1.19	1.17	1.03	1.39	1.08	1.05
CFI	0.99	0.99	0.99	0.99	0.99	0.99
GFI	0.98	0.95	0.98	0.99	0.98	0.99
RMSEA	0.03	0.03	0.03	0.04	0.02	0.02
SRMR	0.05	0.04	0.05	0.05	0.02	0.02

Notes: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ . # Natural logarithm transformation of the original values;  $\beta$  = dummy variable.

## 5. Findings

The first hypothesis (H1), which posited that the interaction between inter- and intra-firm collaboration was positively related to environmental management practices, found support ( $\beta = 0.24$ ;  $t = 3.12$ ;  $p < 0.01$ ). We further argued in H2 that environmental management practices were positively related to accelerated internationalization. Accordingly, the results empirically supported such a positive relationship ( $\beta = 0.20$ ;  $t = 2.95$ ;  $p < 0.01$ ). We further contended (H3) that environmental management practices mediated the relationship between inter- and intra-firm collaboration interaction and accelerated internationalization. As the results in Table 3 show, we found positive and significant paths (1) from the interaction between inter- and intra-firm collaboration to environmental management practices ( $\beta = 0.24$ ;  $t = 3.12$ ;  $p < 0.01$ ), (2) from environmental management practices to accelerated internationalization ( $\beta = 0.20$ ;  $t = 2.95$ ;  $p < 0.01$ ), and (3) from the joint effect of inter- and intra-firm collaboration to accelerated internationalization ( $\beta = 0.16$ ;  $t = 2.16$ ;  $p < 0.05$ ). More importantly, the significant association between the interaction of inter- and intra-firm collaboration and accelerated internationalization was found to disappear ( $\beta = 0.12$ ;  $t = 1.63$ ;  $p > 0.10$ ) when their relationship was channeled through environmental management practices ( $\beta = 0.19$ ;  $t = 2.63$ ;  $p < 0.01$ ). Thus, these findings provide support for H3, i.e., that environmental management practices mediate the joint effect of inter- and intra-firm collaboration interaction on accelerated internationalization.

We performed two additional tests to establish the robustness of the mediation effect. First, we estimated the model using the PROCESS macro [106]. The results were found to show a positive and significant effect of inter- and intra-firm collaboration interaction on environmental management practices ( $\beta = 0.26$ ;  $t = 3.07$ ;  $p < 0.01$ ). In turn, environmental management practices were found to be positively related to accelerated internationalization ( $\beta = 0.19$ ;  $t = 2.71$ ;  $p < 0.01$ ). More importantly, we assessed the significance of the indirect effect. At a bootstrap-estimated 95% confidence interval, the indirect effect

(estimate = 0.16) was found to give a lower bound of 0.039 and an upper one of 0.311. Thus, we found a significant indirect effect of the relationship between the interaction of inter- and intra-firm collaboration and accelerated internationalization through environmental management practices.

## 6. Discussion

Following the emerging research stream focused on the integration of the sustainability, collaboration, and international business literature, this study represents a first attempt to explore how collaboration synergy affects the environmental knowledge practices and accelerated internationalization of SMEs. Specifically, we examined the mediating role played by environmental management practices in the relationship between the interaction of inter- and intra-firm collaboration and SME accelerated internationalization. Overall, a structural model analysis of survey data from 208 UAE SMEs provided support for our hypotheses.

### 6.1. Theoretical Contributions

We contribute to ongoing management research by integrating unique and interrelated streams of research on collaboration, sustainability, and international business. In doing so, we respond to recent scholarly calls on the confluence of these research areas [107,108]. First, our findings provide an understanding of inter- and intra-firm collaboration as predictors of SME accelerated internationalization. While previous research examined inter- and intra-firm collaboration separately [29,109], our study provides a complementary perspective and shows the interactive effect of inter- and intra-firm collaborations on SME accelerated internationalization. This finding is in line with the RBV (with regard to combinative resources) by demonstrating that the exploitation of valuable and rare resources in a combinative way provides firms with competitive advantages in foreign markets [15,110]. Thus, our study brings novel insights into the collaboration and international business literature by showing how SMEs align their inter- and intra-firm collaboration to promote their accelerated internationalization.

Second, prior research on inter-firm collaboration speculated that involvement in cooperative relationships gives SMEs knowledge and financial resources that can be leveraged to expand into international markets [109,111]. While this contention may be alluring, recent studies suggested that inter- and intra-firm collaboration may not necessarily drive accelerated internationalization [39,112]. Accordingly, this study offers an additional explanation to the collaboration–internationalization relationship by highlighting the significant mediating role played by environmental knowledge practices. Specifically, we argue that inter- and intra-firm collaboration synergy enables SMEs to access resources, acquire new knowledge, and combine relation-specific resources in unique ways that promote environmental knowledge practices. In turn, environmental management practices lead to the accelerated internationalization of SMEs. Our findings reveal that environment management practices mediate the impact of inter- and intra-firm collaboration interaction on accelerated internationalization.

Third, due to the focus of this study on a unique sample of SMEs based in Dubai, the UAE [113], our findings and insights extend the literature on internationalizing SMEs in the context of emerging markets. This contribution to the international business literature is unique because of the dearth of scholarly attempts aimed at uncovering how internationalizing SMEs in developing economies can take advantage from inter- and intra-firm collaboration synergy and environmental management practices [33].

### 6.2. Practical Implications

Our study has important implications for practitioners and SME owners. First, its results suggest that, for developing market SMEs, inter- and intra-firm collaboration have synergistic effects on environmental management practices. This finding is relevant for those SMEs that wish to reap the benefits of their environmental initiatives. This implies

that business owners and managers need to deploy both inter- and intra-firm collaboration simultaneously if they want to enhance their firms' environmental management practices. Within the study context of developing economy SMEs, in which the pursuit of environmental practices is often encouraged by numerous competitive pressures and regulatory requirements [41,114], it is sufficient to identify that aligning inter- and intra-firm collaboration can promote the knowledge integration needed for environmental management practices.

Second, our study reveals that, despite being necessary, inter- and intra-firm collaboration complementarity might not directly lead to the accelerated internationalization of SMEs. Importantly, its results suggest that the owners and managers of developing economy SMEs should channel their inter- and intra-firm collaboration combinative resources into accelerated internationalization through environmental management practices. By exploiting their internal and external knowledge resources, developing economy SMEs can follow environmentally friendly practices (e.g., reduced waste, reduced pollution, and recycling) in order to enhance their legitimacy and reputability for accelerated internationalization.

From the public policymaking perspective, governments and public leaders should encourage firms to engage in environmental management practices not only as a state (or environmental sustainability) prerequisite, but also as a strategic option that can support the survival and success of domestic SMEs in international markets. Specifically, governments, policymakers, and other relevant stakeholders should promote environmental management initiatives and practices, such as reduced waste, low carbon emissions, reduced pollution, and environmentally friendly production processes. This could be achieved by promoting inter-firm collaboration to exchange knowledge and valuable resources between firms. In addition, environmental practices could be learned from intra-firm collaboration by aspiring SMEs managers to share information between departments. Such environmental management practices could prepare SMEs to internationalize in a rapid fashion.

### 6.3. Limitations and Future Research Directions

Despite its contributions, our study had several limitations that require future research attention. First, it examined the role played by the alignment of inter- and intra-firm collaboration in environmental management practices. However, it disregarded important contingent factors, such as any institutional and environmental factors that can hinder or promote the hypothesized relationship [16]. To this end, future research could consider the moderating role played by domestic environmental uncertainty (i.e., competitive uncertainty, technological turbulence, and market uncertainty) and domestic institutional frameworks on the collaborations–environmental management practices relationship.

Second, we considered accelerated internationalization during the pre-entry stage of internationalization. However, the recent literature on SME internationalization suggests that SMEs can chase accelerated internationalization during both the pre- and the post-entry stages of their internationalization [22,33]. Thus, future studies focused on both pre- and post-entry accelerated internationalization could further enhance our understanding of the collaboration interplay–environmental management practices–accelerated internationalization relationships.

Third, future studies could adopt cross-country comparisons to replicate this study and confirm its findings in other contexts. The Middle Eastern region has other developing economies that share outlooks similar to that of the UAE (e.g., Saudi Arabia, Oman, Qatar, and Egypt); yet, their environmental, cultural, and legal contexts are different. We reckon that investigating our study hypotheses in similar countries would provide more interesting and revealing conclusions.

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