The nexus between entrepreneurial orientation and performance: enabling roles of absorptive capacity

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Abstract

Purpose – Developing countries' economic growth very much depend on the successful performance of entrepreneurial-oriented firms. Entrepreneurial orientation (EO) is a valuable conjecturer of firm success. This study mainly focuses on analyzing the effect of EO on the firm performance (FP) with the mediating role of absorptive capacity (ACAP).

Design/methodology/approach – To test the hypothetical model, we collected 226 valid responses from senior managers of small and medium enterprises (SMEs). The structural equation modeling technique is performed and research hypotheses are validated.

Findings – The findings show that the strong causal relations exit between EO, ACAP and FP. In brief, EO was found to be a predictor of ACAP, and ACAP has a strong positive impact on FP. Moreover, ACAP substantiated to be a mediator between EO and FP.

Research limitations/implications – A notable ramification of this finding is that for SMEs to enhance their performance via EO, the presence of ACAP as a mediator is essential.

Practical implications – The findings of this study can be used as a basis to consider EO to increase firms' level of ACAP and to enhance FP. As a whole, the findings offer pragmatic insights for SMEs and pertinent stakeholders.

Originality/value – So far, little is known about the interrelationship between EO, ACAP and FP. Importantly, the mediating role of ACAP between EO and FP has remained unexplored. This study fills this gap in the existing literature.

Keywords Sri Lanka, Entrepreneurial orientation, Absorptive capacity, Firm performance

Paper type Research paper

1. Introduction

The role of government is essential in developing economies; however, this role is dwindling, and future development should originate from entrepreneurial-oriented business (Gaur *et al.*, 2018). Firms functioning in the competitive markets seek to constantly improve their performance (Zacca and Dayan, 2018). Entrepreneurial orientation (EO) is an imperative conjecturer of firm success (Kraus *et al.*, 2012) because of its impact on firm performance (FP) (Davis *et al.*, 2010; Wiklund and Shepherd, 2005). EO was initially understood as a decision-making process that affects the firm's readiness to innovate, act more proactively and aggressively than competitors and take risks (Miller and Friesen, 1983). This concept has progressed, leading to a dynamic definition of EO as the degree to which the firm grips change and innovation, risk-taking and aggressive competition (George and Marino, 2011; Wiklund and Shepherd, 2005). Accordingly, EO would now be able to define as the firm's capacity to innovate, take risks and pioneer new undertakings (Engelen *et al.*, 2014).

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EO allows firms reconnoitering potential opportunities, rising new business and accelerate the swift growth (Zhai *et al.*, 2018). In fact, many researchers have professed the imperative role of EO toward business performance (Gupta and Batra, 2016). But, the process of transmuting EO into FP is tough and not always direct. Scholars have stressed for further advancement in the analysis of how to transform EO into improved FP (George and Marino, 2011) by considering the factors that might influence this process. In this context, various researchers have investigated different features of the relations amid EO and enterprises performance.

Although various empirical study investigating the immediate linkage of EO – FP have been observed to be positive with different contextual factors (Gupta and Batra, 2016). Some investigations have failed to discover proof of this relationship (Hernández-Perlines and Rung-Hoch, 2017). However, we know minimal about how EO influences performance, basically in the dynamic capability settings, for example, absorptive capacity (ACAP), except a study conducted by Hernández-Perlines *et al.* (2017).

This study is primarily focused on Sri Lankan small and medium enterprises (SMEs). Though SMEs are vital to the economy but their failure rate is reckoned about 45% in Sri Lanka. Moreover, it also represents 85% of all Sri Lankan businesses, 80% of GDP and 70% of private sector employment in Sri Lanka (Lussier *et al.*, 2016). Furthermore, the empirical research on the relationship of EO and FP is on infantry level in Sri Lanka. However, the study by Hilal (2016) tried to find out the relationship between strategic orientation and SMEs performance through mediating role of marketing capabilities in Sri Lanka. The EO was used as one sub-variable of Strategic Orientation. The study found that EO increases the marketing capability and then leads to the amelioration of firms' performance.

So far, little is known about the interrelationship between EO, ACAP and FP. Importantly, the mediating role of ACAP between EO and FP has remained unexplored (Kostopoulos *et al.*, 2011; Liu *et al.*, 2018) Based on this research gap, the present study was designed to explore how EO contributes to FP enrichment directly and indirectly through ACAP. This study attempts to address following questions:

RQ1. What are the effects of EO on FP in the SMEs?

RQ2. What is the role of ACAP in the path by which EO enhances FP?

Therefore, this study seeks to investigate the EO–FP relations, by including the dynamic capacity (for example ACAP) as a mediator. This study aims to examine the relationship between the EO and FP while considering the enabling role of ACAP.

The primary contribution of this study is its focus on the mediating role of ACAP in the EO–FP relations, a phenomenon that has less focused among SMEs in the emerging economy like Sri Lanka. This research also adds to the existing literature by contributing to the overall EO–performance research stream by integrating the one of the dynamic capability framework that allows the conditions for positive EO to take effect. The findings will offer a sensible reference for refining SME performance.

The study is structured as follows: First, it examines the theoretical basis as well as the research hypotheses; then, outline the methodology used; present the results and then provide a discussion. Finally, it offers conclusions and limitation of the study.

2. Theoretical basis and research hypotheses

2.1 EO and absorptive capacity

The ACAP supports enterprises to identify and understand what is utmost pertinent and appropriate about the potential substitutes and perspectives sought through various relationship (George and Marino, 2011). EO allows enterprises to construct their ACAP by

identifying and evaluating new opportunities (Engelen *et al.*, 2014). Thus, poor linkage amid EO–ACAP restricts firm's capabilities to recognize the significant opportunities, understand problems properly and encounter the concurrent phenomena of the business (Covin and Miller, 2014). Moreover, prior studies have found positive impact between EO and ACAP (Wales *et al.*, 2013). Similarly Gellynck *et al.* (2015) showed that possessing higher level of EO results in greater firm's ACAP. On the other hand, the high level of EO enhances the readiness to increase firms' ACAP (Aljanabi, 2018). Therefore it is apparent that EO is an antecedent of ACAP (Hernández-Perlines *et al.*, 2017). Hence, it is hypothesized:

H1. EO positively affects firm's ACAP.

2.2 ACAP and performance

The term "ACAP" is defined as the business's capability to ascertain the worth of potential external information, integrate it and then apply it for meaningful ends (Cohen and Levinthal, 1990). The ACAP as a dynamic capacity has wider application in the field of strategic orientation (Zahra and George, 2002). The ACAP has been considered as one of the important factor for the endurance and success of the enterprises in long term as it helps to fortifies and supplements its information base (Lane *et al.*, 2006). In recent past, numerous scholars have investigated the ACAP–FP nexus. With the viewpoint of dynamic capabilities Liu *et al.* (2018) found that ACAP has direct impact with FP. Furthermore Wales *et al.* (2013) found a curvilinear linkage amid ACAP and financial performance. Likewise, Tzokas *et al.* (2015) found that ACAP acts as a means for transforming external knowledge into FP. Thus, it is hypothesized:

H2. ACAP positively affects FP.

2.3 EO and firm performance

In entrepreneurship investigation, variety of approaches are used to operationalize a business's performance, and thereby entrepreneurial success. Prior researchers found that EO closely linked to a firm's success (Gupta and Batra, 2016; Rauch *et al.*, 2009; Semrau *et al.*, 2016). Amazingly, EO is similarly fit for foreseeing financial performance for what it's worth of anticipating non-financial performance (Rauch *et al.*, 2009). Most of all, financial actors such as profitability, sales growth, market share and employee growth are applied (Davis *et al.*, 2010). Likewise, different scientific works have shown the significance of EO for entrepreneurial achievement. Furthermore Harms *et al.* (2010) found a positive relationship amid EO and the level of sales growth. In this way Gupta and Batra (2016) have revealed a strong positive relationship between EO and FP. In this vein Patel *et al.* (2015) confirmed that EO enables the firm to create the necessary variation and manage this variation to increase performance. Similarly Hilal (2016) also showed that EO support for SMEs success in Sri Lankan context. Moreover Boso *et al.* (2013) have found positive linkage amid EO–FP. Therefore, we expect that:

H3. EO positively affects FP.

2.4 ACAP as mediator between EO and performance

This study is supported very much by the argument that number of previous studies have focused on the mediating impact of ACAP in relations several organizational aspects. None of them tackled in relation to EO–FP. Except the prior research by Hernández-Perlines *et al.* (2017) which has revealed that ACAP positively mediated the linkage between EO–family FP. Furthermore, they also found that for firms to improve their performance via EO, the presence of ACAP is unavoidable. Likewise Wales *et al.* (2013) argue that EO may enable

firms to increase performance successfully within their ACAP. Further, the different empirical studies done in Sri Lankan context also found that the ACAP mediates the relationship between knowledge creation capabilities and innovation performance (Raisal *et al.*, 2019). In a similar vein Raisal *et al.* (2018) revealed that ACAP between knowledge inflows capacity positively impacts on product innovation. Moreover, a prior research by Gnizy *et al.* (2014) also found that EO can be associated with the ACAP assisting the firms to recognize the potential market opportunities to enhance FP. It is hypothesized.

H4. ACAP mediates the linkage amid EO and FP.

Figure 1 shows the research model.

3. Research methods

3.1 Measure

This study employed the existing validated scales for all the constructs. EO was examined with its different measurements with innovativeness (five items scale), proactiveness (five-item scale) and risk-taking (four-item scale). In this way, EO was measured using the 14 items suggested by Eggers *et al.* (2013). ACAP was assessed using a scale validated/confirmed by Flatten *et al.* (2011). For this composite measure, the extent to which firms acquire (three-item scale), assimilate (four-item scale), transform (four-item scale) and exploit (three-item scale) new knowledge was evaluated. Eventually, entrepreneurial success is regarded as FP, which was measured by four items developed by Chen *et al.* (2007). Appendix 1 shows measures of each construct used in this study.

3.2 Sample and data collection

The analysis of this hypothetical model is done using the instrument that was sent to the key executives of randomly selected 386 firms in Colombo and its suburbs from the enterprise survey database (2003/2004) upheld by the Department of Census and statistics of Sri Lanka. This study opted mail survey followed by repeated phone calls. Key informants of sample SMEs were communicated and obtained their consent to take part in the study, then the questionnaire were sent to them. The senior managers were the main informants of this study. Out of 386 questionnaires were sent, 276 firms completed the questionnaire, after a complete debugging of the questionnaires received, finally 226 valid responses were obtained, which means a response of 58.54%. The firms responded for this study are from the following sector: 90 food and beverages (39.8%), 44 agricultural products (19.5%), 28 machinery and equipment (12.4%), 22 plastic and associate products (9.8%), 20 pharmaceutical/cosmetic (8.8) and 27 other industries (9.7%). Table 1 shows the demographic profile of the sample.

The questionnaire was prepared containing measures effectively validated in earlier studies. The responses were obtained using a five-point Likert scale (strongly disagree "1" – strongly agree "5"). The instrument was directed in English. An interview with field expert was conducted to justify the questionnaire. Finally, the questionnaire was pilot tested on 30

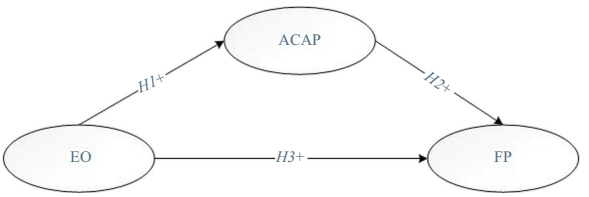

Figure 1.
Research model

	Category	*N*	%
Employee	5–24	52	23
	25–199	174	77
Annual_Sales	1M–10M Rs	54	23.9
	>11M Rs	172	76.1
Ownerships	Sole Proprietor	72	31.9
	Private Limited Liability Company	125	55.3
	Partnership	29	12.8
Gender	Male	160	70.8
	Female	66	29.2

Table 1.
Demographic profile of the sample

SMEs in the study region ascertaining its suitability and attaining the content validity for the constructs opted in this study.

4. Results and findings

PLS-SEM method and Smart PLS v.3.2.7 were utilized to estimate the hypothesized model. The investigation was driven in two stages to confirm the measurement scales were valid and reliable (Anderson and Gerbing, 1988). First, included investigation of the measurement model, followed by examination of the structural model to test the hypothetical linkage among the constructs.

4.1 Analysis of the measurement model

To confirm measurement model, it is essential to assess the individual item reliability, internal consistency, convergent validity and discriminant validity (Hair *et al.*, 2016). The score of the factor loading allows to assess individual item reliability. All items used above the minimum value of 0.71 proposed by Malhotra (2010), except for the EO – pro-activeness (EOPR03) item, which had a less loading of 0.64. However, it was retained as other items of the same construct have reached preferred AVE values (Avkiran, 2018). Further, the less loading items such as EOIN03, EOIN04, EOPR01, EOPR02; EORT01, EORT02, EORT03, EORT04, ACEX03 were dropped from the final analysis.

Concerning internal consistency, the composite reliability (CR) is assessed. As shown in Table 2, all scores attained show a stringent reliability of the constructs, displaying scores above 0.8 (Hair *et al.*, 2016). Likewise, all the latent variables possess more than 0.5 scores of the average variance extracted (AVE), proposing that the constructs achieve convergent validity. Table 2 shows the results of items loading, convergent validity (AVE) and CR. Finally, the discriminant validity (DV) was assessed with three approaches namely Fornell–Larcker criterion, cross loadings and the heterotrait–monotrait (HTMT) ratio of correlations. Table 3 shows the square root of the AVE for all factors exceeded the cross correlation values, confirming the DV. Besides, the results of cross-loading scrutiny prove that each latent variable measures dissimilar items, see Appendix 2.

Moreover, HTMT approach used to decide the DV of the constructs. To attain DV the score of the HTMT should not to be above 0.90 (Henseler *et al.*, 2015). In this research, all the scores are less than threshold values (0.90), confirming the uniqueness of all constructs, as shown in Table 4.

Latent constructs	Items	Loadings	AVE	CR	Cronbach's alpha	rho_A
Entrepreneurial orientation (EO)	EO_IN 01	0.89	0.65	0.92	0.90	0.93
	EO_IN_ 02	0.91				
	EO_IN _05	0.83				
	EO_ PR _03	0.64				
	EO_ PR_ 04	0.76				
	EO_PR _05	0.81				
Absorptive capacity (ACAP)	ACAQ_ 01	0.79	0.61	0.95	0.95	0.95
	AC_AQ_02	0.81				
	AC_AQ_03	0.79				
	AC_AS_01	0.81				
	AC_AS_02	0.85				
	AC_AS_03	0.83				
	AC_AS_04	0.76				
	AC_EX_01	0.78				
	AC_EX_02	0.78				
	AC_TR_01	0.79				
	AC_TR_02	0.73				
	AC_TR_03	0.71				
	AC_TR_04	0.71				
Firm Performance (FP)	FP_01	0.79	0.60	0.86	0.78	0.78
	FP_02	0.80				
	FP_03	0.72				
	FP_04	0.79				

Table 2. Results of items loading, convergent validity (AVE) and composite reliability

	Mean	SD	ACAP	EO	FP
Absorptive capacity (ACAP)	*3.75*	*0.79*	0.78	1.00	1.03
Entrepreneurial orientation (EO)	4.49	0.81	0.17	0.81	1.03
Firm performance (FP)	3.89	0.80	0.46	0.33	0.78

Table 3. Correlations and DV results

Note(s): Diagonal, italic elements represent square root of AVE, these should exceed the inter-construct correlations for adequate DV. Scores above diagonal elements are VIF Values

4.2 Analysis of structural models

The procedures proposed in Hair *et al.* (2016) were pursued to decide the impacts. First, the variance inflation factor (VIF) scores for all measures, ranging from 1.46 to 3.93 which is less than (5), indicating no multicollinearity issue in the structural model (Hair *et al.*, 2016). Second, the R^2 scores of ACAP (0.13) and FP (0.28), which confirms predictive validity as displayed in Table 5. Third, the significance of the path coefficient was obtained using bootstrapping approach with 5,000 interaction was executed to produce the path coefficient as displayed in Table 5(A). The results show that every single direct impact is significant. Along these lines, H1, H2 and H3 are supported. Fourth, this study also reported on the predictive relevance (Q^2)

	ACAP	EO	FP
ACAP			
EO	*0.16*		
FP	*0.52*	*0.35*	

Table 4. Heterotrait–monotrait ratio (HTMT)

(A) Effects on endogenous variables structural path	Path coefficient[a]	*t*-valued (bootstrap)	95% confidence interval Lower	Upper	Status
ACAP → FP	0.41	8.4	0.3	0.49	H1 supported
EO → ACAP	0.17	2.36	0.01	0.3	H2 supported
EO → FP	0.26	5.34	0.16	0.35	H3 supported

(B) Summary of mediating effect tests effect	Point coefficient	*t*-valued (bootstrap)	95% bias-corrected confidence interval	Interpretation	Status
EO → ACAP → FP	0.07	2.20	0.04, 0.14	Full mediation	H6 supported

Note(s): R^2 ACAP = 0.13; Q^2 ACAP = 0.01; R^2 FP = 0.28; Q^2 FP = 0.15. Criterion for $R^2 \geq 0.25$ are weak; ≥ 0.50 are moderate; and ≥0.75 are substantial

Table 5.
Summary of direct relationships and mediating effect tests

using the blindfolding approach. Bagozzi (1994) proposed that a Q^2 scores above 0 indicate that model has sufficient predictive relevance for a certain dependent construct. As appeared in Table 5, the Q^2 scores of all constructs are demonstrating acceptable predictive relevance.

This research followed the procedure recommended by Cepeda-Carrion *et al.* (2016) for the mediation analysis (H4). Moreover, the Preacher and Hayes (2008) approach of indirect effect was employed to test the mediation. Again, bootstrapping analysis was conducted and the results obtained on *t*-statistics, significance levels, *p*-values, just as 95% confidence intervals (percentile) for the mediators. See Table 5.

(B) Demonstrates the consequences of mediation analyses. In this way, these results support H4.

5. Discussion and implications

5.1 Discussion

This study examines the relationship between EO and FP over an empirical study among the senior managers of 226 Sri Lankan SMEs. Specially, the research focuses on the relationship between EO and FP with the mediating effect of ACAP (see Figure 1).

The first hypothesis stated that the EO (innovation, proactiveness and risk taking) predicts the ACAP. The findings reveal that EO is the strong conjecturer of ACAP. EO allows firms to exploit opportunities with the higher level of absorption capacity among SMEs. The finding is consistent with the first hypothesis stated that the EO (innovation, proactiveness and risk taking) predicts the ACAP. The findings reveal that EO is the strong conjecturer of ACAP. EO allows firms to exploit opportunities with the higher level of absorption capacity among SMEs. The finding is consistent with (Engelen *et al.*, 2014), who found that EO allows enterprises to construct their ACAP by identifying and evaluating new opportunities. The outcomes of the present study stress the significance of EO for achieving competitive position by helping firm's to innovate, act more proactively and aggressively than competitors with the present of ACAP.

The second hypothesis was that ACAP predicts FP. As expected, the findings of the study highlight that ACAP is a strong predictor of FP. The findings of this study also revealed that ACAP enriches FP. This finding is consistent with Tzokas *et al.* (2015). Third hypothesis states that EO affects FP. As projected, EO positively affects FP. This influence has been found in several prior studies of firms (Hernández-Perlines *et al.*, 2017; Kraus *et al.*, 2012).

The fourth hypothesis highlighted that EO affects FP via ACAP. As hypothesized, the results confirm that ACAP mediates the linkage between EO and FP. The present findings are consistent with past research that found ACAP as a mediator between antecedents and outcome constructs (Gnizy *et al.*, 2014; Hernández-Perlines *et al.*, 2017).

Moreover, the EO and ACAP are also considered as strategic element, which stretch to the formulation of strategy of economic creeds and business controlling, intended to rise business performance (Qian and Jung, 2017). Thus it helps the firms to perform well in changing market condition in the market operation. The study by Qian and Jung (2017) presents EO and ACAP as strategic determinants which contribute positively to the export performance. Another study by Hernández-Perlines *et al.* (2017) found that the EO and ACAP positively impact on family FP.

Furthermore, the relationship between the EO and SMEs innovative performance has been well improved under the action of ACAP in the study by Zhai *et al.* (2018). Furthermore, previous study by Qian *et al.* (2013) has also found that the EO and ACAP enable firms to build their strategic capability to exploring potential opportunities, rising new business and accelerate the swift growth of the firms. This finding is also consistent with Wales *et al.* (2013). To conclude, the present findings are in line with previous research and confirm our claim that ACAP plays vital role in relating EO with FP among Sri Lankan SMEs.

5.2 Theoretical implications

This study seeks to contribute to the research field in two main areas: First, the study's key contribution to the EO literature is the empirical validation of the theoretical argument that a firm's EO–performance relationship is mediated by ACAP, thus this research adds to the existing literature by contributing to the overall EO–performance research stream by integrating the one of the dynamic capability framework that allow the conditions for positive EO to take effect and second, where mainstream of the EO studies analyze data drawn from the US or European context, this study analyzes data drawn from emerging economies like Sri Lanka.

5.3 Practical implications

From a practical viewpoint, the study suggests that the senior managers of SMEs should be vigilant of the roles that ACAP play in raising FP. It suggests that the senior managers should promote ACAP for increasing firms' market share, sales growth and then improving the profit momentum. Moreover, ACAP is also considered as the valuable mechanism for the firms to provide and sustaining competitive advantage and fostering firm's growth. Furthermore, managers should fortify their knowledge ACAP to boost innovativeness, risk taking and proactiveness to enhance profitability.

6. Conclusion and limitations

6.1 Conclusion

This study examined the impact of EO on ACAP, the impact of ACAP on FP and the impact of EO on FP. The study also investigated the mediating role of ACAP between EO and FP. The findings of this research confirm that the EO of Sri Lankan SMEs in terms of their

innovativeness, proactiveness, and propensity to take risks determines their capacity to identify, assimilate, and exploit new knowledge, then improve the FP.

6.2 Limitations

The following limitations in this paper are worth addressing in future research. First, this study was conducted only in the western province (Colombo and suburbs) of Sri Lanka. This could be extended to the other parts of the Island where many small businesses are in existence. Second, due to the use of email survey as data collection technique the number of samples was less. It was observed that e-mail did not reach most business e-mail contacts and was not read by many recipients (Kale *et al.*, 2019). Third, the response was obtained only from a single source like senior managers. Fourth, in the literature, there is a limited number of studies examining the mediating role of ACAP (Kale *et al.*, 2019).

In future studies, the ACAP can be dealt with in terms of the SMEs sector with different sampling groups. Thus, this should be an interesting avenue for future EO research in the Sri Lankan context.

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Appendix 1
Measures of study

Construct	Item code	Measure	Source
Entrepreneurial orientation (EO)	EORT01	We value new strategies/plans even if we are not certain that they will always work (Risk-taking)	Eggers *et al.* (2013)
	EORT02	To make effective changes to our offering, we are willing to accept at least a moderate level of risk of significant losses (Risk-taking)	
	EORT03	We encourage people in our company to take risks with new ideas (Risk-taking)	
	EORT04	We engage in risky investments (e.g. new employees, facilities, debt, and stock options) to stimulate future growth (Risk-taking)	
	EOPR01	We continuously try to discover additional needs of our customers, of which they are unaware (Proactiveness)	
	EOPR02	We consistently look for new business opportunities (Proactiveness)	
	EOPR02	Our marketing efforts try to lead customers, rather than respond to them (Proactiveness)	
	EOPR03	We incorporate solutions to unarticulated customer needs in our products and services (Proactiveness)	
	EOPR04	We work to find new businesses or markets to target (Proactiveness)	
	EOIN01	When it comes to problem solving, we value creative, new solutions more than solutions that rely on conventional wisdom (Innovativeness)	
	EOIN02	We highly value new product lines (Innovativeness)	
	EOIN03	We consider ourselves to be an innovative company (Innovativeness)	
	EOIN04	Our business is often the first to market with new products and services (Innovativeness)	
	EOIN05	Competitors in this market recognize us as leaders in innovation (Innovativeness)	

(*continued*)

Construct	Item code	Measure	Source
Absorptive capacity (ACAP)		*Acquisition capacity*	Flatten *et al.* (2011)
	ACAQ01	The search for relevant information concerning our industry is everyday business in our company	
	ACAQ02	Our management motivates the employees to use information sources within our industry	
	ACAQ03	Our management expects that the employees deal with information beyond our industry	
		Assimilation capacity	
	ACAS01	In our company, ideas and concepts are communicated cross-departmentally	
	ACAS02	Our management emphasizes cross-departmental support to solve problems	
	ACAS03	In our company, there is a quick information flow	
	ACAS04	Our management demands periodical cross-departmental meetings to interchange new developments, problems, and achievements	
		Transformation capacity	
	ACTR01	Our employees have the ability to structure and use collected knowledge	
	ACTR02	Our employees are used to absorbing new knowledge as well as to prepare it for further purposes and making it available	
	ACTR03	Our employees successfully link existing knowledge with new insights	
	ACTR04	Our employees are able to apply new knowledge in their practical work	
		Exploitation capacity	
	ACEX01	Our management supports the development of prototypes	
	ACEX02	Our company regularly reconsiders technologies and adapts them in accordance with new knowledge	
	ACEX03	Our company has the ability to work more effectively by adopting new technologies	
Firm performance (FP)	FP01	Last year, we achieved a higher sales growth than our (direct/indirect) competitors	Chen *et al.* (2007)
	FP02	Last year, we achieved a higher profit growth than our (direct/indirect) competitors	
	FP03	Last year, we achieved a higher growth on number of employees than our (direct/indirect) competitors	
	FP04	Last year, we achieved a higher growth on market shares than our (direct/indirect) competitors	

Appendix 2
Item to construct cross-loadings

	Absorptive capacity (ACAP)	Entrepreneurial orientation (EO)	Firm performance (FP)
ACAQ01	*0.79*	0.14	0.38
ACAQ02	*0.81*	0.13	0.36
ACAQ03	*0.79*	0.12	0.32
ACAS01	*0.81*	0.13	0.42

(*continued*)

	Absorptive capacity (ACAP)	Entrepreneurial orientation (EO)	Firm performance (FP)
ACAS02	*0.85*	0.13	0.36
ACAS03	*0.83*	0.13	0.35
ACAS04	*0.76*	0.17	0.36
ACEX01	*0.78*	0.1	0.33
ACEX02	*0.78*	0.17	0.4
ACTR01	*0.79*	0.16	0.34
ACTR02	*0.73*	0.16	0.4
ACTR03	*0.71*	0.04	0.3
ACTR04	*0.71*	0.09	0.26
EO01	0.16	*0.89*	0.29
EO02	0.2	*0.91*	0.3
EO05	0.14	*0.83*	0.34
EOPR03	−0.05	*0.64*	0.06
EOPR04	0.1	*0.76*	0.17
EOPR05	0.09	*0.81*	0.26
FP01	0.33	0.24	*0.79*
FP02	0.35	0.3	*0.80*
FP03	0.37	0.22	*0.72*
FP04	0.37	0.27	*0.79*

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