

ROLE OF TOLERANCE TO AMBIGUITY, ENVIRONMENTAL PERCEPTION, AUTHENTIC LEADERSHIP AND PERFORMANCE IN SMEs

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Abstract: This study analyses the relationship between tolerance to ambiguity, environmental perception, authentic leadership and performance in SMEs. In order to test the above, information is collected from 285 entrepreneurs and through a combination, the mediation analysis is applied with the moderation of the direct effect of tolerance to ambiguity on performance through the environmental perception, as well as an effect on the relationship between the mentioned variables is determined directly, which is a function of authentic leadership. The authors found that tolerance to ambiguity and authentic leadership were positive predictors of environmental perception, which in turn positively impacted performance in SMEs. Additionally, the study revealed that the relationship between tolerance to ambiguity and performance was mediated by environmental perception. Overall, the study provides valuable insights into how the interplay of various factors can impact SME performance outcomes and suggests that enhancing tolerance to ambiguity and authentic leadership can lead to improved environmental perception and, ultimately, better performance for such businesses.

Keywords: Tolerance to ambiguity; Environmental perception; Authentic leadership; Performance; SMEs; Mediation – moderation analysis

DOI: 10.17512/pjms.2023.27.2.06

Article history:

Received April 03, 2023; *Revised* April 11, 2023; *Accepted* May 05, 2023

Introduction

SMEs play a critical role in the universal economy as a substantial driver of the health and wealth of society. Its success or failure can have significant repercussions for numerous interested parties. This is why learning the components that impact the

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operation of SMEs is vital in today's business landscape. It is not just external components, such as economic conditions, industry competition, and changing customer preferences, that have the potential to significantly affect how SMEs operate. Internal components such as organizational culture, leadership styles, and the function of adjusting to ambiguity can also play an essential role in deciding how SMEs operate. Therefore, understanding how internal and external components interact to influence management outcomes is essential to help SME owners and managers make informed choices and improve their long-term success.

In this article, the researchers contribute to the study of SMEs by investigating the relationship between the variables: tolerance for ambiguity, perception of the environment, authentic leadership and performance in SMEs. Specifically, it explores whether low tolerance for ambiguity increases the unfavorable performance of a venture and whether the perception of the environment mediates the relationship between tolerance for ambiguity and, in turn, influences performance. In addition, the role of authentic leadership as a moderator of this mediation model is examined. By exploring these variables, it is hoped to better understand these relationships. To the best of our knowledge, this study is the first to explore and compare mediation mechanisms related to tolerance for ambiguity, perception of the environment, authentic leadership, and performance in SMEs in the Ecuadorian context.

Although previous studies have explored certain of these factors independently, there is a lack of research focused especially on the relations of these variables in the SME environment. This gap might be essential to further investigate the mechanisms by which these components affect performance and the likely moderating components that could impair these interactions. Closing this gap in the literature could provide valuable information regarding how SMEs can take advantage of these components to improve their operation while helping to better understand the complicated dynamics that influence the SMEs performance.

Literature Review

The presence of SMEs is palpable in economies worldwide (De Massis et al., 2018; Heydari et al., 2013; Nikolaev et al., 2019), particularly in America Latina (Useche Aguirre et al., 2021). The statistics from 2019 to 2020 reflected an Early Entrepreneurial Activity (TEA) in Ecuador of 36.2 %, and this implies that around 3.6 million inhabitants were involved in starting a business (Useche Aguirre et al., 2021); by December 2021, this rate rose by 4.7 %. However, the proportion of established businesses (those that exceed 42 months) decreased to 14.7% from 15.4 % in 2017. One of the recognized causes of poor business performance is associated with the person of the entrepreneur or founder of the business (López-Gamero et al., 2011; McKelvie et al., 2018; Titus and Anderson, 2018), fundamentally due to the way of perceiving and acting in the environment in which the business is carried out. In an increasingly changing and competitive political, economic, social and health environment, small and medium-sized businesses must proactively adapt and continuously find and take advantage of new opportunities to gain experience and

stay in the market (Grühn et al., 2017). In this sense, many of these decisions will be made in the context of ambiguity.

Entrepreneurs' role is vital in channeling their efforts towards effective performance. The performance of an organization is a complex phenomenon; in this research, the line of diverse authors will be followed, and it will focus on performance in terms of economic and financial performance (Brouthers et al., 2014; Kouaib and Jarboui, 2017; Tang et al., 2017). This is so since this way of understanding performance has been considered the most tangible expression of an administration proactively related to its environment (López-Gamero et al., 2011).

According to various authors, the perception of the environment (Kamariotou and Kitsios, 2022; López-Gamero et al., 2011; Pons et al., 2016) and tolerance to the ambiguity of the entrepreneur (Jach and Smillie, 2019; Jessani and Harris, 2018; McLain et al., 2015; van de Sandt and Mauer, 2019) are important factors that can influence business performance.

Tolerance to Ambiguity (TA)

TA is a concept addressed by multiple authors in the context of entrepreneurship (Endres et al., 2015; Hillen et al., 2017; Jach and Smillie, 2019; McLain et al., 2015; van de Sandt and Mauer, 2019). TA has been interpreted as how an individual perceives and processes information about ambiguous situations or stimuli when faced with a series of unknown, complex or incongruous phenomena (Durrheim and Foster, 1997; Furnham and Marks, 2013; McLain et al., 2015). The characteristics mentioned above could be those of the environment of any contemporary SME.

TA has been related to various business phenomena, such as the educational level of entrepreneurs (van de Sandt and Mauer, 2019), effectiveness in decision-making (Endres et al., 2015), organizational performance (Katsaros et al., 2014) and innovation (Heydari et al., 2013). TA can influence how individuals perceive their environment; People with high TA may be more likely to see opportunities and strengths in situations that others might perceive as threats or weaknesses, causing them to focus more time, energy, and resources on seizing opportunities and building on strengths (De Massis et al., 2018; Hillen et al., 2017; Jach and Smillie, 2019; McLain et al., 2015; van de Sandt and Mauer, 2019). TA is, then, the ability to respond positively to ambiguous situations so that an owner-manager with a high tolerance for ambiguity can still make better decisions made in an ambiguous environment, contributing to better business performance (Herman et al., 2010).

All these studies suggest that a high tolerance for ambiguity is positively related to better business performance. This is likely because entrepreneurs and teams with a high tolerance for ambiguity can better navigate uncertain and complex environments, deal with diverse stakeholders, manage change, make strategic decisions, take risks, and engage in proactive behaviors, leading to better business performance. All of the above allows us to propose hypothesis 1.

Hypothesis 1: A high tolerance to ambiguity is positively related to better performance.

Environmental Perception (EP)

The analysis of the environment is a fundamental factor for small businesses since it allows identifying opportunities and threats as well as strengths and weaknesses, thus helping to align strategies with internal and external requirements, plan the future courses of action of the organization and reach a good performance (Analoui and Karami, 2002; López-Gamero et al., 2011).

It is necessary to point out that the final result of this analysis will always depend on the entrepreneur's perception when determining what aspects he interprets as opportunity, threat, strength or weakness based on the internal or external analysis. The literature review accounts for various investigations related to the relationship between EP and the performance of small businesses (Analoui and Karami, 2002; Clarkson, Li, Richardson, and Vasvari, 2008).

EP is strongly influenced by the personal characteristics of the individual recipient; the TA, personal insecurity, needs, interests, past experiences and expectations can be transferred in the perception and interpretation of information from the environment and distort it, influencing the action in relation to it (Herman et al., 2010; Jach and Smillie, 2019). There is clear evidence that the interpretation of strategic environmental issues results from a perceptive process (Dheer and Lenartowicz, 2018; López-Gamero et al., 2011). There is nothing wrong with this as long as there is an explicit distinction between the characteristics of the environment itself and the perception of that environment by human agents. For the purposes of this research, what interests the authors is to know if the perception of the environment by the entrepreneur is related to the performance of the business; this is so since it is only through managerial perceptions that the environment becomes "known" to the organization (Bourgeois, 1980, 1985). It is clear that every business has an objective environment with facilitators and limitations to how it operates; what is of interest here is whether the entrepreneur's perceptions of this reality influence the final result of the business.

Entrepreneurs with a high tolerance for ambiguity are more likely to seek out and embrace new and diverse experiences and cope with perceived environmental uncertainty and market dynamism. This is because they are more comfortable with uncertainty and complexity, which allows them to explore new opportunities and adapt to changing circumstances. The literature found that entrepreneurs who could maintain a positive attitude and adapt their behaviors to fit the changing environment could lead their businesses to better performance. Hypothesis 2 would be formulated as follows:

Hypothesis 2: The relationship between tolerance to ambiguity and performance is mediated by environmental perception.

Authentic Leadership (AL)

Authentic leadership contributes to creating a positive work environment where uncertainty is managed to stimulate trust (Bryan and Vitello-Cicciu, 2022; Sergeeva and Kortantamer, 2021). According to the authentic leadership model, job

performance is influenced by authentic leaders (Audenaert et al., 2021; Gardner et al., 2021).

Authentic leaders are concerned with developing the strengths of their employees, expanding their thinking to face changes in the environment, in this way, influencing their members through the transfer of a deep sense of responsibility to achieve the performance expected from the business (Audenaert et al., 2021; Luu, 2020). Authentic leaders harness their own positive personal resources to contribute to and complement the resources of their subordinates in order to improve their performance (Avolio et al., 2004).

The reviewed literature suggests that authentic leadership can facilitate tolerance for ambiguity and environmental perception. Authentic leaders are more likely to create a positive and supportive organizational climate that fosters openness, creativity, and innovation, ultimately leading to greater tolerance for ambiguity and environmental perception among followers. This allows for the following hypotheses:

Hypothesis 3a: Authentic leadership moderates the relationship between tolerance to ambiguity and environmental perception.

Hypothesis 3b: Leadership will moderate the strength of the mediated relationship between tolerance to ambiguity and performance through environmental perception.

In general, it is considered that authentic leadership is, therefore, a moderator of the relationship between environmental perception and performance. Support for these hypotheses, and Hypotheses 1 and 2, would produce a pattern of moderate mediation, as shown in Figure 1.

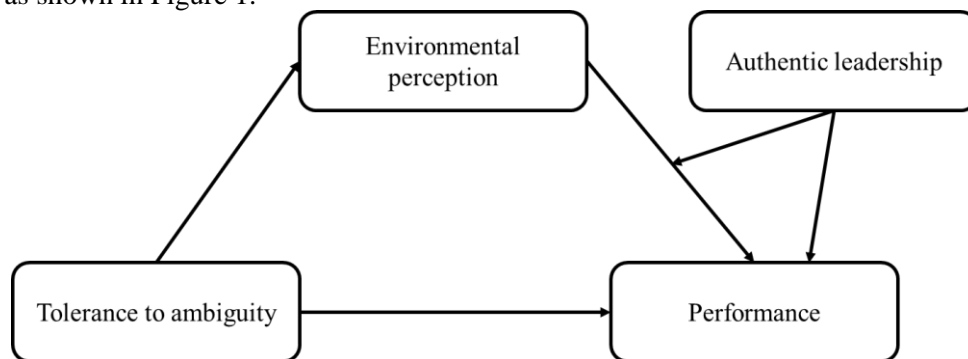


Figure 1: Proposed model
Source: Authors' elaboration

Research Methodology

The data was collected from 285 Ecuadorian entrepreneurs between September and November 2022. Of these participants: 137 (48.07%) were men, and 148 (51.92%) were women. The mean age of the participants was 31 years, with a range of 20 to 60 years. The average age of the company was 13.5 months, with a range of 1 month to 48 months. The sampling method was for convenience, responding to the

exploration that is intended to be carried out. Table 1 shows the composition of the sample.

Table 1. Sample description

Sectors	Micro	Small
Agriculture	3	5
Retail trade	49	55
Gastronomic services	95	78
Total	147	138

Source: Authors' elaboration

These entrepreneurs are mainly located in the provinces of Pichincha and Santo Domingo de los Tsáchilas. Geographic areas with high levels of entrepreneurship. Performance (P) is considered as a dependent variable. It was measured using a multidimensional construction with four self-assessment scales belonging to four performance indicators of a company (Sales, Profits, Market share and Economic profitability).

With the information collected, the entrepreneurs scored their company on a 7-point scale whose ends and midpoints are read as follows: below average, approximately average, and above average. Although this is a perception-based measure, the literature shows that subjective measures of performance obtained from key informants, such as managers themselves, are highly correlated with objective indicators (Brothers et al., 2015). Reliability coefficients for performance scales ranged from 0.683 to 0.836. The responses are aggregated and averaged to give a composite measure of performance for each business analyzed.

For the measurement of tolerance to ambiguity (TA), the Likert scale used in previous studies (Heydari et al., 2013) is used, which consists of 22 items. This scale reports a reliability of 0.743.

The authentic leadership (LA) questionnaire (Avolio et al., 2004) is used to measure the perceptions of authentic leadership of the employees of the entrepreneur studied. The instrument consists of 16 Likert-type items divided into four scales that are averaged for a total authentic leadership score. For reliability purposes, Cronbach's alpha was a value of 0.841.

For the measurement of the environmental perception (EP), an instrument with seven extracted items was used that makes it possible to evaluate the situation of the companies on a scale of 1 to 7 according to their perception of the environment of the entrepreneurs from an exciting opportunity (7) or a high-impact threat (1), Cronbach's alpha obtained a value of 0.80 (López-Gamero et al., 2011).

Data analysis is performed using SPSS Statistics 23. Following previous research, the INDIRECT macro (Chung et al., 2017; Lee et al., 2017) is used to evaluate the mediating effect of environmental perception in the relationship between tolerance to ambiguity and performance. A moderated mediation analysis is performed using the PROCESS macro (Chung et al., 2017; Jeremy et al., 2015; Lee et al., 2017; Zhang

et al., 2017) to estimate the indirect conditional effects of tolerance for ambiguity on performance through the environmental perception in terms of authentic leadership.

Research Results

Following the methodology explained in the previous section, the mediating effect of the perception of the environment between tolerance to ambiguity and performance was evaluated. Table 2 shows the correlation coefficient of the analyzed variables.

Table 2. Correlations coefficient

	1	2	3	4
TA	-			
EP	0,85 ***	-		
P	0,89 ***	0,77 ***	-	
AL	0,77 ***	0,69 ***	0,66 ***	-

TA: Tolerance to Ambiguity; EP: Environmental Perception; P: Performance; AL: Authentic Leadership

*** $p < 0,001$

Source: Authors' elaboration

Correlation analysis reveals that TA was significantly related to EP ($r = 0.85$, $p < 0.001$), P ($r = 0.89$, $p < 0.001$), and AL ($r = 0.77$, $p < 0.001$), and that EP was significantly related to P ($r = 0.77$, $p < 0.001$) and AL ($r = 0.69$, $p < 0.001$). In addition, AL was negatively related to P ($r = 0.66$, $p < 0.001$). The variables used in the model were significantly correlated. From a general look, a more significant correlation between TA and P was observed.

The results are shown in Table 3.

Table 3. Regression results for simple mediation

Variable	B	SE	t	p
	Total and direct effect			
P vs. TA	2,16	0,19	12,10	0,000
EP vs. TA	-1,52	0,12	-15,25	0,000
P vs. EP	-0,78	0,09	-8,95	0,000
P vs. TA, controlled by EP	1,10	0,23	5,48	0,000

Source: Authors' elaboration

From the results obtained, it can be seen that tolerance to ambiguity had a positive effect on Performance ($B = 2.16$, $b = 0.50$, $p < 0.001$) and a negative effect on environmental perception ($B = -1.52$, $\beta = 0.58$, $p < 0.001$), and the environmental perception had a negative effect on P ($B = -0.78$, $\beta = 0.43$, $p < 0.001$). When the mediator (environmental perception) was included in the model, the effect of ambiguity tolerance on P was reduced ($B = 1.10$, $\beta = 0.25$, $p < 0.001$), and the reduction in this relationship was significant.

To verify the importance of the indirect effect of environmental perception in the relationship between tolerance to ambiguity and performance, the 95% confidence intervals (CI) of the parameter estimates are calculated. The indirect conditional effect of tolerance to ambiguity on performance through environmental perception was significant ($B = 1.08$, $SE = .16$, $CI\ 95\% = [0.78, 1.37]$). Therefore, it was confirmed that environmental perception partially mediated the association between tolerance to ambiguity and performance (supporting hypotheses 1 and 2).

Model 14 was adopted to test moderate mediation using the PROCESS approach (Chung et al., 2017; Hayes, 2018; Hayes and Preacher, 2014). Table 4 presents the moderating effect of AL on the relationship between tolerance to ambiguity and performance.

Table 4. Regression results for conditional indirect effect.

Variable	B	SE	t	p
	Performance (P)			
Constant	2,56	0,72	4,01	0,000
EP	-0,49	0,10	-4,78	0,000
AL	0,15	0,05	-6,01	0,000
EP vs. AL	0,05	0,03	-2,55	0,016

Source: Authors' elaboration

As predicted in Hypothesis 2, authentic leadership was positively related to performance ($B=0.15$, $\beta=0.31$, $p<0.001$). In addition, the interaction term between environmental perception and authentic leadership in performance was significant ($B= 0.05$, $\beta = 0.14$, $p=0.016$). The researchers interpret this significant interaction by plotting simple slopes at one standard deviation above and below the authentic leadership mean (Chung et al., 2017; Lee et al., 2017) (Figure 2).

The slope of the relationship between environmental perception and performance was relatively strong for entrepreneurs with high levels of authentic leadership ($t = 7.57$, $p < 0.001$), while the slope was relatively weak for employees with low levels of AL ($t = 5.01$, $p < 0.001$). The results show that authentic leadership moderates the indirect effect of tolerance to ambiguity on performance through environmental perception. Specifically, the indirect and positive effect of tolerance to ambiguity on performance through environmental perception became stronger as the level of authentic leadership increased. This supports hypotheses 3a and 3b.

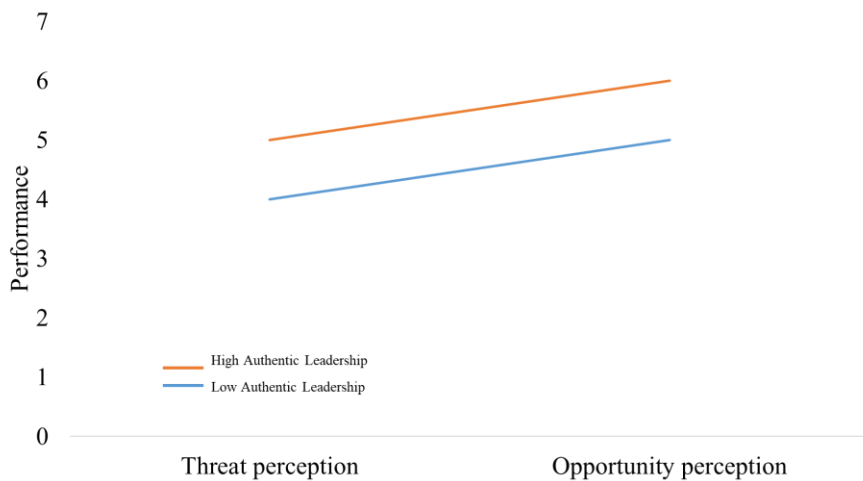


Figure 2: Interaction of environmental perception and authentic leadership in performance

Source: Authors' elaboration

Discussion and Conclusion

The poor performance of many ventures brings with it the departure from the business framework of many businesses, with the usual loss of jobs, destruction of invested capital and reduction of an offer that, if it had not failed, would increase the range of options for the particular market in which it operates. The research explored the relationships between tolerance for ambiguity as a variable that influences performance, and it was hypothesized that the perception of the environment would mediate the relationship between the two; it was further examined whether authentic leadership by entrepreneurs could directly influence performance and strengthen or weaken the indirect relationship between tolerance for ambiguity and performance. As expected, the mediating effect of the perception of the environment was significant, which supports the proposed hypothesis. This result corroborates studies that explore this relationship (Kamariotou and Kitsios, 2022; López-Gamero et al., 2011).

The way in which entrepreneurs perceive their environment is impregnated by the logic of conducting the business nuanced by authentic leadership, which allows creating the conditions to manage uncertainty and stimulate behavior that contributes to better performance (Bryan and Vitello-Cicciu, 2022; Gardner et al., 2021).

The moderated mediation analysis revealed that the main effect of authentic leadership on performance was significant, being lower among entrepreneurs with a lower evaluation regarding this variable, which is consistent with previous studies (Bryan and Vitello-Cicciu, 2022; Luu, 2020). The research confirms that authentic leadership moderates the relationship between the perception of the environment and performance, this relationship being stronger in entrepreneurs with a better evaluation of authentic leadership, demonstrating the positive influence of this

variable on performance. It is also confirmed that tolerance for ambiguity influences entrepreneurship performance, confirming the results of other studies (Hillen et al., 2017; Jach and Smillie, 2019; McLain et al., 2015; van de Sandt and Mauer, 2019) and that this influence is mediated by the perception of the environment (López-Gamero et al., 2011; Kamariotou and Kitsios, 2022).

Based on the research findings, it is recommended that managers and leaders focus on developing and emphasizing authentic leadership behaviors in their interactions with employees. Encouraging open communication and feedback, demonstrating a genuine concern for the well-being of their followers, and fostering a culture of mindfulness among employees may also be beneficial in promoting and recognizing authentic leadership behaviors. Additionally, allowing and further tolerance for ambiguity in the workplace is essential, as this can lead to more adaptive and creative responses to uncertain situations. By prioritizing authentic leadership and tolerance for ambiguity, managers and leaders can create a more positive work environment and potentially improve the overall performance of their organization.

This study is not exempt from limitations, some of which constitute future study directions. First, all the study variables were measured using a self-administered questionnaire. In the case of performance evaluation, this method can introduce a certain level of subjectivity into this evaluation. Second, the present study's cross-sectional design restricts the scope of the relationships studied. Additional studies that apply a longitudinal design will be required. Third, the results focus only on two Ecuadorian provinces, which implies that the research findings may not be replicable in other geographic areas with different cultural and business networks. Therefore, it would be beneficial for future research to replicate this study in other provinces, preferably using data from extent sample of entrepreneurs, which would allow a greater generalization of our findings. Finally, although the relationships found are justified, it is recognized that there are other variables that can impact the performance of SMEs. Future research might consider including these variables in the model, such as trust, communication, climate, and other personal and organizational factors, as moderators in the relationship between tolerance of ambiguity and performance.

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ROLA TOLERANCJI NA WIELOZNACZNOŚĆ, POSTRZEGANIE ŚRODOWISKA, AUTENTYCZNE PRZYWÓDZTWO I WYDAJNOŚCI W MŚP

Streszczenie: Niniejsze badanie analizuje związek między tolerancją na niejednoznaczność, postrzeganiem środowiska, autentycznym przywództwem i wydajnością w MŚP. Aby przetestować powyższe, zebrano informacje od 285 przedsiębiorców i poprzez połączenie zastosowano analizę mediacji z moderacją bezpośredniego wpływu tolerancji na niejednoznaczność na wyniki poprzez postrzeganie środowiska, a także wpływ na związek między wymienionymi zmiennymi jest określany bezpośrednio, co jest funkcją autentycznego przywództwa. Autorzy stwierdzili, że tolerancja na niejednoznaczność i autentyczne przywództwo były pozytywnymi predyktorami postrzegania środowiska, co z kolei pozytywnie wpłynęło na wyniki MŚP. Ponadto badanie wykazało, że związek między tolerancją na niejednoznaczność a wynikami był pośredniczony przez postrzeganie środowiska. Ogólnie rzecz biorąc, badanie dostarcza cennych informacji na temat tego, w jaki sposób wzajemne oddziaływanie różnych czynników może wpływać na wyniki MŚP i sugeruje, że zwiększenie tolerancji na niejednoznaczność i autentyczne przywództwo może prowadzić do lepszego postrzegania środowiska, a ostatecznie do lepszych wyników takich firm.

Słowa kluczowe: Tolerancja na niejednoznaczność; Percepcja środowiska; Autentyczne przywództwo; Wydajność; MŚP; Mediacja – analiza moderacji

容忍歧义、环境感知、真诚领导的作用中小企业的表现

摘要: 本研究分析了中小企业对模糊性的容忍度、环境感知、真实领导力和绩效之间的关系。为了检验上述内容，从 285 名企业家那里收集了信息，并通过组合，应用中介分析，通过环境感知调节对模糊容忍度对绩效的直接影响，以及对两者之间

关系的影响。上述变量是直接确定的，这是真正领导力的一个功能。作者发现，对歧义的容忍度和真诚的领导力是环境感知的积极预测因素，这反过来又对中小企业的绩效产生了积极影响。此外，该研究表明，对歧义的容忍度与绩效之间的关系是由环境感知调节的。总的来说，该研究提供了关于各种因素的相互作用如何影响中小企业绩效结果的宝贵见解，并表明 强对模糊性和真实领导力的容忍度可以改善环境感知，并最终为此类企业带来更好的绩效。

关键词：对歧义的容忍度；环境感知；真诚的领导；表现；中小企业；调解——调节分析