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MANAGERIAL CULTURAL INTELLIGENCE,
MARKETING AGILITY, AND FIRM INNOVATION

LAI ZHENZHU

SINGAPORE MANAGEMENT UNIVERSITY

2022

Managerial cultural intelligence, marketing agility, and firm innovation

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Submitted to Lee Kong Chian School of Business
in partial fulfillment of the requirements for the
Degree of Doctor of Business Administration

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This Doctor of Business Administration dissertation has also not been
submitted for any degree in any university previously.

A handwritten signature in black ink, consisting of three characters: '赖', '珍', '珠'. The signature is written in a cursive style and is positioned above a solid horizontal line.

Lai Zhenzhu

30 January 2022

Managerial cultural intelligence, marketing agility, and firm innovation

LAI ZHENZHU

Abstract: This dissertation aims to investigate the relationship between managerial cultural intelligence, marketing agility and innovation capability of foreign subsidiaries. Based on upper echelons theory (UET), I argue that managerial cultural intelligence facilitates marketing agility. Moreover, marketing agility is positively associated with innovation capability of foreign subsidiaries. Using two-wave survey data of 110 foreign subsidiaries in China, this study verified the theoretical model. It is found that managerial cultural intelligence is positively associated with marketing agility, and marketing agility is positively related to innovation capability of foreign subsidiaries. Organizational learning climate, market competition, market turbulence, and market complexity have positive moderating effects on the relationship between managerial cultural intelligence and marketing agility. This dissertation aims to enrich the research on the upper echelons theory, cultural intelligence, marketing agility and innovation capability, and provide references for foreign subsidiaries to improve marketing agility and innovation capability.

Keywords: managerial cultural intelligence, marketing agility, innovation capability, organizational learning climate, market contexts

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Chapter 1 Introduction

Under the background of globalization, more and more organizations expand business through cross-border operations and set up subsidiaries in other countries. In increasingly complex international markets, foreign subsidiaries are faced with very different cultural, economic, and institutional challenges. Even subsidiaries of well-known multinational companies may have to withdraw from the local markets if they are not able to adapt to the markets (Asseraf et al., 2019). For instance, Carrefour's failure to adapt to changing markets has led to its withdrawal from China after 24 years of operation, one of the biggest e-commerce markets all over the world¹. The COVID-19 pandemic increases the market complexity, and agility becomes key for firms to keep resilient². Marketing agility demonstrates a firm's ability to sense unpredictable changes in fast-changing environments and respond to changes rapidly and flexibly by readjusting its actions (Chen & Chiang, 2011; Nemkova, 2017). Marketing agility is a key source of firms' competitive advantages, which enable firms to adjust their marketing strategies to seize opportunities and avoid threats, especially for foreign subsidiaries in international markets (Gomes et al., 2020). For example, Google's former China head Kaifu Lee emphasized the toughness of the Chinese market, and argued that subsidiaries of American firms need to empower local teams to be localized and responsive to seize opportunities in

¹ Carrefour's History and Exit from China <https://worldfinancialreview.com/carrefours-history-and-exit-from-china/>

² Agile resilience in the UK: Lessons from COVID-19 for the 'next normal'
<https://www.mckinsey.com/business-functions/organization/our-insights/agile-resilience-in-the-uk-lessons-from-covid-19-for-the-next-normal#>

China³. Based on my observation in my working experience in foreign subsidiaries, I observed the difference in market agility between foreign subsidiaries and local companies in China. For example, when the foreign subsidiaries make a market strategy in China, they have to consider local cultural, economic, and institutional differences, as well as the process consistency between headquarter and subsidiaries. While local companies will have fewer concerns in these aspects, and thus they are more proactive and flexible than foreign subsidiaries. These phenomena have aroused my interest in the research on the market agility of foreign subsidiaries in China.

Prior research has investigated several antecedents of firms' marketing agility, such as marketing planning and flexibility maintenance capability (Asseraf et al., 2019), big data analytics (Hajli et al., 2020), IT application orchestration capability (Benzidia & Makaoui, 2020), information processing capability (Li et al., 2021), and training for marketers (Supreethi & Suresh, 2021). However, the antecedents from the cultural aspects still lack exploration. Cultural differences may lead to tensions, conflicts, and uncertainty, and cross-cultural interactions are great challenges for foreign subsidiaries that are unfamiliar with cultural contexts and stakeholders from different cultures in the host country (Earley & Ang, 2003). In order to keep agility in local markets, top management teams of foreign subsidiaries need to understand the difference in different cultures (Gomes et al., 2020). As CEO of Unilever, Paul Polman said:

³ Why big American businesses fail in China <https://www.cnn.com/2013/09/26/why-big-american-businesses-fail-in-china.html>

“We have to make sure that our corporate culture and operation model reflects the market there”⁴. A survey by Nordea pointed out that cultural differences make it difficult for foreign companies’ learning and application in new business environments⁵. In such a context, the cultural intelligence of top management teams becomes important, which indicates the capability to interact with individuals from various cultures effectively across cultural contexts (Thomas et al., 2015). Top management teams with high cultural intelligence can better adjust to the local values, show greater confidence and effectiveness in dealing with conflicts in the host country and are more willing to support the marketing strategies to adapt to the local markets (Pauluzzo, 2021). Cultural intelligence enables top management teams to understand the market where subsidiaries are operating, and make effective marketing strategies according to specific culture (Afsar et al., 2020; Berraies, 2019), and maintain marketing agility.

Extant studies have explored various outcomes of cultural intelligence at the individual level, like cultural adjustment (Lin et al., 2012) and work performance (Malek & Budhwar, 2013). An executive-level cultural intelligence also obtained some attention (Groves & Feyerherm, 2011; Magnusson et al., 2013; Vlačić et al., 2019). However, the influence of cultural intelligence at the TMT level on firm-level outcomes such as marketing agility still lacks exploration. The notion of cultural intelligence has not been fully

⁴ Growth reimagined: Prospects in emerging markets drive CEO confidence https://www.pwc.com/gx/en/ceo-survey/pdfs/paul_polman.pdf

⁵ Foreign direct investment (FDI) in China <https://www.nordeatrade.com/en/explore-new-market/china/investment>

integrated into strategic research (Goelgeci et al., 2017), especially in foreign subsidiaries. Therefore, this dissertation aims to investigate the influence of managerial cultural intelligence on the marketing agility, as well as the impact of marketing agility on innovation capability of foreign subsidiaries.

This dissertation argues that managerial cultural intelligence facilitates the marketing agility of foreign subsidiaries, and marketing agility is beneficial for innovation capability of foreign subsidiaries. The relationship between managerial cultural intelligence and marketing agility is contingent on the internal and external contexts of foreign subsidiaries. From the aspect of internal contexts, organizational learning climate supports the bottom-up process for organizational strategies of top management teams with high cultural intelligence to develop marketing agility, and thus has a positive moderating effect on the relationship between managerial cultural intelligence and marketing agility. From the aspect of external environments, market competition enhances the positive influence of cultural intelligence on marketing agility because managerial cultural intelligence becomes more important in obtaining competitive information to respond to market changes when market competition is intense. Market turbulence has a positive moderating effect on the relationship between managerial cultural intelligence and marketing agility since managerial discretion increases in turbulent markets and managerial cultural intelligence becomes more valuable for foreign subsidiaries to sense market changes and seize opportunities when market

turbulence is high. And market complexity strengthens the positive effect of managerial cultural intelligence on marketing agility, because it enhances managerial discretion and increases the information-processing loads for top management teams. When market complexity is high, managerial cultural intelligence becomes more critical for top management teams to identify market opportunities and make effective strategies to improve marketing agility. Using two-wave survey data of foreign subsidiaries in China, this study verified the theoretical model proposed, and provides references for foreign subsidiaries to develop marketing agility and improve innovation capability.

This dissertation strives to contribute to extant research as follows. First of all, this dissertation focus on the marketing agility of foreign subsidiaries, a subject that has received relatively little attention (Gomes et al., 2020). By investigating the marketing agility's antecedents from the aspect of top management team characteristics and its influence on innovation capability of subsidiaries, this study deepens the understanding of marketing agility of foreign subsidiaries in the era of globalization. This study argues that managerial cultural intelligence promotes marketing agility, and marketing agility can facilitate innovation capability in foreign subsidiaries, enriching the studies on marketing agility. Second, this dissertation investigates the antecedent of marketing agility at the top management team level in foreign subsidiaries, extends antecedents of marketing agility, and responds to the calls for micro foundations of marketing agility (Ferraris et al., 2021). Marketing

agility is critical for firms' operation (Asseraf et al., 2019; Li et al., 2019), especially for foreign subsidiaries who are unfamiliar with the local markets. However, existing research on antecedents of marketing agility mainly focused on the organizational factors such as big data analytics (Hajli et al., 2020), IT application orchestration capability (Benzidia & Makaoui, 2020), and information processing capability (Li et al., 2021). Few studies pay attention to how individuals contribute to agility of foreign subsidiaries in international markets (Christofi et al., 2021; Ferraris et al., 2021), namely, the micro foundations of marketing agility lack attention in prior research and the TMT-level antecedents in foreign subsidiaries lack exploration. This dissertation demonstrates the positive influence of managerial cultural intelligence on marketing agility, enriching the research on antecedents of marketing agility. Third, this study explores the influence of managerial cultural intelligence of top management team on the firm-level outcomes, a subject that lacks attention in prior research (Kadam et al., 2019), enriching the research on team-level cultural intelligence and upper echelons theory. Existing research concentrated on the effect of cultural intelligence at the individual level but pay little attention to the team or organizational level (Ott & Michailova, 2018). This dissertation investigates the impact of cultural intelligence of top management teams on firm-level outcomes and adds new insight to the team-level cultural intelligence. Fourth, this dissertation investigates the moderating roles of the internal and external environment on the connection between managerial cultural

intelligence and marketing agility of foreign subsidiaries. Prior research pays little attention to the question of under what conditions micro foundations work on the agility of foreign subsidiaries (Ferraris et al., 2021). This dissertation examines the moderating effects of organizational learning climate, market competition, market turbulence, and market complexity on the relationship between managerial cultural intelligence and marketing agility, which is helpful to deepen our understanding of the influence of managerial cultural intelligence under different environments and enrich the applied contexts of cultural intelligence in globalization.

Chapter 2 Literature Review

2.1. Marketing agility

2.1.1. Concept of marketing agility

Agility demonstrates the capability of a company to sense unpredictable changes in fast-changing contexts and respond to changes rapidly and flexibly by readjusting its course of action, which plays an essential role in seizing opportunities and avoiding threats in the complex business environment (Chen & Chiang, 2011; Nemkova, 2017). Since its first introduction, the definition of agility has been extended to various fields by scholars, such as supply chain management (Eckstein et al., 2015) and manufacturing (Gunasekaran et al., 2019).

Specifically focusing on marketing decisions, marketing agility refers to a company's ability to anticipate and sense changing customer needs in markets

and respond timely by reconfiguring marketing tactics, which enable a firm to gain competitive advantages over competitors. A highly market-agile firm is supposed to be both proactive and reactive. Proactivity means the ability to detect the changeable market needs and identify opportunities and threats, or even become the trend leader who creates the changes in the market. Reactivity indicates the capability to respond quickly to better satisfy the demand of customers (Eckstein et al., 2015; Roberts & Grover, 2012). The definitions of marketing agility by different scholars are summarized in Table 1.

Table 1 The definitions of marketing agility by different scholars

Reference	Definition of Marketing agility
Khan (2020)	A meta-dynamic capability that enables enterprises to find opportunities in an unstable environment and respond quickly by reconfiguring marketing strategies
Zhou et al. (2019)	A sensing and responding capability of a company to proactively forecast and detect marketing opportunities, and make quick and flexible response to these opportunities to enhance customer satisfaction
Poolton et al. (2006)	A capacity to keep highly involved in recognizing market needs
Accardi-Petersen (2011)	An ability to outperform competitors by reconfiguring business systems and redeploying resources
Homburg et al. (2020)	A firm's strategic means to achieve growth, including simplified processes and structure, trial and error learning, quick decision making
Kalaignanam et al. (2020)	The degree to which firms perceive the market and readjust their marketing strategies to adapt to the rapid iteration between the markets

It is generally acknowledged by researchers that marketing agility can be regarded as a combination of several facets. Khan (2020) argued that marketing agility is made up of both proactive and reactive elements involve proactive

market sensing, speed, responsiveness, and flexibility. Osei et al. (2019) suggested that robustness, responsiveness, and proactiveness are three important elements for firms to achieve marketing agility. Sherehiy et al. (2007) suggested that speed, flexibility, responsiveness, integration, the culture of change, and low complexity are important characteristics of agility. Kalaiganam et al. (2020) proposed that MA consists of sensemaking, iteration, speed, and marketing decisions. Among all the above classifications of extant researches, most of the scholars mention the key concepts of proactiveness, speed, responsiveness, and flexibility (Sherehiy et al., 2007; Zhang, 2011). Proactivity indicates the ability of a firm to identify or even stimulate the changes in market needs (Poolton et al., 2006). Responsiveness refers to quickly modifying marketing strategies to tackle unpredictable opportunities and threats. Speed focuses on responding to these needs by adjusting marketing tactics timely. Flexibility demonstrates the ability to generate different combinations of services or products efficiently to meet changeable demands (Braunscheidel & Suresh, 2009). And the facets of marketing agility are summarized in Table 2.

Table 2 Facets of marketing agility

Reference	Facets of (Market) Agility
Zhang (2011); Zhou et al. (2019); Khan (2020)	<ul style="list-style-type: none"> • Proactiveness • Responsiveness • Speed • Flexibility
Osei et al. (2019)	<ul style="list-style-type: none"> • Robustness • Responsiveness • Proactiveness

Sherehiy et al. (2007)	<ul style="list-style-type: none"> • Flexibility • Responsiveness • Speed • Culture of change • Integration and low complexity
Kalaiganam et al. (2020)	<ul style="list-style-type: none"> • Sensemaking • Iteration • Speed • Marketing decisions

There are some constructs similar to marketing agility, but there are also some differences between them. The definition of agility has been extended to a lot of functions, and the concepts such as strategic agility, supply chain agility are proposed. But marketing agility is different from these concepts because it concentrates on marketing decisions. Marketing agility is also different from market orientation and adaptive marketing capabilities since market orientation does not value flexibility and speed and adaptive marketing capabilities do not emphasize speed (Zhou et al., 2019). Both dynamic capability and marketing agility value speed and sensemaking (Kalaiganam et al., 2020). Some research even regarded marketing agility as an instance of dynamic capabilities (Zhou et al., 2019). But dynamic capability does not focus on market decisions like marketing agility. The definition of these constructs and their difference from marketing agility is displayed in Table 3.

Table 3 Comparing marketing agility with other constructs.

Construct	Definition	Difference
Strategic agility	Strategic agility referring to the capability of a company to recognize and respond to an ever-changing environment by conceiving of and implementing strategies to sustain competitive	Marketing agility concentrates on market decisions but agility in other organizational fields

	advantage (Doz & Kosonen, 2008).	does not.
Supply chain agility	Supply chain agility demonstrates the speed that a company's function of internal supply chain adapts to the market changes (Swafford et al., 2008).	
Agile manufacturing	Agile manufacturing is a mode concentrating on modular production facilities, small scale, and agile operation to address changing and uncertain environment (Cao & Dowlatshahi, 2005).	
Operational agility	Operational agility demonstrates the capability of companies' business process to realize accuracy, speed and cost economy in the process of taking advantage of innovation and competitive behaviors (Huang et al., 2012)	
Organizational agility	The capability of a firm to deal with rapid, ruthless and uncertain changes and keep growing in a competitive context (Lu & Ramamurthy, 2011).	
Market orientation	Market orientation demonstrates the produce, dissemination and response of market intelligence (Jaworski & Kohli, 1993).	Marketing agility emphasizes flexibility and speed but market orientation does not.
Adaptive marketing capability	Adaptive marketing capability indicates a company's ability to take measures according to market insights, constantly learn from experimentations, and integrate resources to adapt to markets (Day, 2011).	Marketing agility emphasizes speed but adaptive marketing capability does not.
Dynamic capability	Dynamic capabilities indicate a company's capacity to integrate, construct, and reconfigure resources in response to turbulent environments (Teece et al., 1997).	Marketing agility focuses on market decisions but dynamic capability does not.

For international companies, they are faced with more complicated and volatile markets, with different political, economic, sociocultural conditions in different countries. Under increasingly competitive and fast-changing

international markets, firms must be able to detect the changes taking place in the global markets and continuously adjust their marketing strategies in different countries, for the purpose of keeping competitive advantages in international environments (Junni et al., 2015; Shenkar, 2010). International firms are commonly faced with the challenge to better develop standardized domestic market approach while customizing strategies to meet international customers (Li et al., 2019). They have to decide to adjust their product/service offerings to cater to the specific requirements of each foreign market separately or to simply provide standardized products the same as its domestic market (Rao-Nicholson & Khan, 2017). To balance the conflict and operate efficiently in multinational markets, international firms need the ability that enables them to recombine the resources and business systems and swiftly deploy marketing strategies under domestic and foreign markets (Craig & Douglas, 2005). Therefore, marketing agility is critical for foreign subsidiaries to operate in other countries, which emphasizes the importance to understand the varieties between countries in terms of regulations and laws, market demands, and cultures (Gomes et al., 2020). Although the notion of agility has received more and more attention, the research on marketing agility of foreign subsidiaries under international markets are quite limited.

2.1.2. Antecedents of marketing agility

Since the introduction of marketing agility, scholars have conducted abundant research on it.

From the aspect of antecedents, extant research has investigated various factors influencing the agility of firms, such as marketing analysis technologies (Ghasemaghaei et al., 2017), organizational capabilities (Felipe et al., 2016), human resource management (Nijssen & Paauwe, 2012), and lean production (Alves et al., 2012). For instance, Poolton et al. (2006) stated that the application of the agility strategic framework helps medium-sized enterprises to maintain marketing agility. Li et al. (2019) argued that interactions with upstream foreign direct investment (FDI) help to enhance the marketing agility of multinational companies. A case study demonstrates the importance of relationship networks in facilitating marketing agility in emerging countries (Osei et al., 2019). Asseraf et al. (2019) found that marketing planning and flexibility maintenance capability are critical for firms to develop marketing agility. Benzidia & Makaoui (2020) believed that a company's capability to orchestrate information technologies enables it to nurture marketing agility. Hajli et al. (2020) argued that big data analytics is a useful tool for firms to develop marketing agility. Supreethi & Suresh (2021) argued that training helps marketers to enlarge their knowledge and improve productivity, and thus facilitating the marketing agility of a firm. Li et al. (2021) believed that a company's information processing capability promotes its marketing agility. Several important studies on the antecedents of marketing agility are summarized in Table 4.

Table 4 Antecedents of marketing agility

Antecedents	Findings	Reference
Agility strategic	The application of agility strategic	Poolton et al.

framework	framework helps medium-sized enterprises to maintain marketing agility	(2006)
Upstream FDI	Interactions with upstream foreign direct investment enhances marketing agility of the multinational companies	Li et al. (2019)
Relationship network	The strong partnership with stakeholders promotes marketing agility.	Osei et al. (2019)
Marketing planning and flexibility maintenance capability	Marketing planning and flexibility maintenance capability help companies to develop international marketing agility.	Asseraf et al. (2019)
IT application orchestration capability	IT application orchestration capability positively influences firms' marketing agility	Benzidia & Makaoui (2020)
Big data analytics	Big data analytics is positively connected with firms' marketing agility	Hajli et al. (2020)
Training for marketers	Training for marketers is beneficial to the companies' marketing agility.	Supreethi & Suresh (2021)
Information processing capability	A company's information processing capability is positively connected with its marketing agility.	Li et al. (2021)

2.1.3. Outcomes of marketing agility

From the aspect of outcomes, several research has investigated the key role marketing agility plays in distinguish firms from competitors in the market and facilitating firm performance. For instance, Asseraf et al. (2019) believed that marketing agility help multinational firms to gain new products advantage and facilitate international market performance. Zhou et al. (2019) suggested that marketing agility can influence firms' financial performance, and the impact is moderated by market turbulence. Li et al. (2019) argued that international marketing agility helps to facilitate firms' export quality, and such a positive influence is stronger in the service industry. Khan (2020) showed that marketing

agility is beneficial to the marketing program adaptation, and thus promoting firm performance. Furthermore, the impact is stronger when the market is more complicated. Hajli et al. (2020) held the view that marketing agility can contribute to the success of new products. Several important studies on the outcomes of marketing agility are summarized in Table 5.

Table 5 Outcomes of marketing agility

Outcomes	Findings	Reference
Marketing program adaptation	Marketing agility enhances marketing program adaptation.	Khan (2020)
Export quality	International marketing agility contributes to firms' export quality.	Li et al. (2019)
International market performance	Marketing agility promotes firms' international market performance.	Asseraf et al. (2019)
New products advantage	Marketing agility is positively connected with new products advantage of firms	Asseraf et al. (2019); Hajli et al. (2020)
Firm performance	Marketing agility positively affects firm performance.	Zhou et al. (2019); Khan (2020); Benzidia & Makaoui (2020)

2.2. Cultural intelligence

2.2.1. Concept of cultural intelligence

On the basis of the concept of intelligence, Earley & Ang (2003) proposed the idea of cultural intelligence (CQ). Cultural intelligence indicates the ability to manage and operate effectively in different cultural settings (Ang et al., 2007). Individuals who have high cultural intelligence can collect, interpret, and take effective actions upon distinct cues in unfamiliar cultural backgrounds or in multicultural settings (Earley & Peterson, 2017), apply previous knowledge in

different cultures, and consider carefully about their actions to avoid misunderstandings (Brislin et al., 2006), and thus quickly adapt to foreign situations and cooperate well with individuals from other cultures (Ott & Michailova, 2018).

Cultural intelligence is a multidimensional concept, scholars have discussed various components of it. At the individual level, Ang et al. (2007) believed that cultural intelligence involves four dimensions, namely metacognitive, motivational, cognitive, and behavioral dimensions. The four dimensions of cultural intelligence reveal different aspects of the ability to operate efficiently in various cultural backgrounds (Earley & Ang, 2003). Further, Dyne et al. (2012) proposed the sub-dimensions of the four aspects of cultural intelligence. They argued that metacognitive cultural intelligence involves awareness, planning, and checking, cognitive cultural intelligence includes context-specific knowledge and culture-general knowledge, motivational cultural intelligence includes intrinsic interest, extrinsic interest, and self-efficacy to adjust, and behavioral cultural intelligence is composed of verbal and non-verbal actions. Thomas et al. (2015) divided cultural intelligence into cultural knowledge, cross-cultural skills, and cultural metacognition. The three dimensions of cultural intelligence are compensatory and interactive, and thus they should not be separated (Thomas et al., 2008). Bückner et al. (2015) proposed a two-dimensional measurement of cultural intelligence, which includes internalized cultural knowledge and effective cultural flexibility.

The detailed information of dimensions of cultural intelligence at the individual level is summarized in Table 6.

Table 6 Multiple dimensions of intellectual intelligence at the individual level

Reference	Dimensions	Conception
Ang et al. (2007)	Metacognitive CQ	Metacognitive cultural intelligence indicates the psychological process of individuals to acquire and understand cultural knowledge.
	Cognitive CQ	Cognitive cultural intelligence demonstrates individuals' knowledge about norms, customary rule, and practices in various cultures derived from their education and experience.
	Motivational CQ	Motivational cultural intelligence indicates individuals' ability to direct their energy and attention to learning and dealing with cultural differences.
	Behavioral CQ	Behavioral cultural intelligence reveals the ability to present suitable verbal and nonverbal behaviors in their contact with persons from other cultures.
Thomas et al. (2015)	Cultural knowledge	Cultural knowledge includes general or content-specific knowledge about the influence of culture.
	Cross-cultural skills	Cross-cultural skills involve abilities to learn from social experience, establish contact with others in different cultures, appreciate cultural differences, and adapt to a specific cultural environment
	Cultural metacognition	Cultural metacognition reflects individuals' knowledge and ability to control their learning process and cognitive states to enlarge their cultural knowledge and improve cultural skills in specific cultures.
Bücker et al. (2015)	Internalized cultural knowledge	Internalized cultural knowledge demonstrates an individual's consciousness of cultural knowledge
	Effective cultural flexibility	Effective cultural flexibility reveals conscious adjustment according to cultures

Based on the concept of individual-level of cultural intelligence, the idea of organizational cultural intelligence was developed. Drawing on the dynamic capability perspective, Moon (2010) argued that organizational cultural intelligence indicates firms' ability to reconfigure its capacity to operate effectively in different cultural situations, and pointed out that it is made up of processes, positions, and paths capability. Ang & Inkpen (2008) believed that organizational cultural intelligence consists of managerial, competitive, and structural cultural intelligence. So far, the research on organizational cultural intelligence is not yet mature (Ott & Michailova, 2018), but has attracted attention of several scholars. Livermore et al. (2021) argued that organizational cultural intelligence reflects an organization's ability to perform effectively in the turbulent and complex multicultural markets, which is critical for the development of 21st century organizations.

2.2.2. Antecedents of cultural intelligence

Research on cultural intelligence has flourished since its beginning. From the aspects of the cultural intelligence' antecedents, scholars have investigated various factors, such as cultural exposures (Crowne, 2008, 2013), experiential cultural intelligence education (Earley & Peterson, 2017; MacNab, 2012; Rosenblatt et al., 2013), cross-cultural training (Fischer, 2011; Ramsey & Lorenz, 2015; Rehg et al., 2012), and individual characteristics (MacNab et al., 2012; MacNab & Worthley, 2012).

In terms of cultural exposure, Crowne (2008) revealed that the vocation, employment and education experience of individuals abroad increase their exposure to different cultures and thus promote their cultural intelligence. Crowne (2013) argued that exposure to different cultures in various forms can improve individuals' cultural intelligence. Şahin et al. (2014) argued that international assignments are beneficial to cultivate and develop cultural intelligence.

In terms of training or education, MacNab (2012) found that experiential education is helpful to enhance cultural intelligence. Rehg et al. (2012) demonstrated that cross-cultural training using a lecture format contributes to enhancing individuals' cognitive and behavioral cultural intelligence. Gupta et al. (2013) indicated that cultural training facilitates the development of cultural intelligence and helps individuals to adjust and perform effectively in different cultural situations. Bucker & Korzilius (2015) believed that the effectiveness of role-plays is stronger in cross-cultural training, and proposed an Ecotonos cross-cultural role-play to enhance cultural intelligence.

In terms of individual characteristics, Fischer (2011) argued that individuals with greater an open mind show more effectiveness in cross-cultural training and their improvements in motivational and cognitive cultural intelligence are higher. MacNab & Worthley (2012) argued that general self-efficacy is key for individuals to develop cultural intelligence. MacNab et al. (2012) found that individuals' trait of openness and general self-efficacy

positively affects their development of cultural intelligence. Gupta et al. (2013) suggested that self-monitoring can be a good forecasting index for cultural intelligence, and individuals with a high level of self-monitoring show high cultural intelligence. Şahin et al. (2014) revealed that individuals with high extraversion and openness perform better in improving cultural intelligence after completing international assignments. Jyoti & Kour (2017) found that emotional and social intelligence has positive impacts on cultural intelligence. Korzilius et al. (2017) revealed that multicultural people have a high level of cultural intelligence. Several important studies on the antecedents of cultural intelligence are summarized in Table 7.

Table 7 research on antecedents of cultural intelligence

Aspects	Antecedents	Reference
Cultural exposure	International experience	Crowne (2008); Moon et al. (2012)
	International assignments	Ng et al. (2009); Şahin et al. (2014)
Training	Cross-cultural training	Fischer (2011); Ramsey & Lorenz (2015); Rehg et al. (2012)
	Experiential education	MacNab (2012); Rosenblatt et al. (2013)
Individual characteristics	General self-efficacy	MacNab & Worthley (2012); MacNab et al. (2012)
	Openness	Fischer (2011); Şahin et al. (2014)
	Self-monitoring	Gupta et al. (2013)
	Extraversion	Şahin et al. (2014)

2.2.3. Outcomes of cultural intelligence

Most of the extant research has explored the effect of individual-level cultural intelligence. The impacts of individual cultural intelligence on various

outcomes have been investigated widely, such as cultural adjustment (Lin et al., 2012), work performance (Malek & Budhwar, 2013), and knowledge sharing (Ali et al., 2019). For example, Ang et al. (2007) argued that cultural intelligence is beneficial to decision-making effectiveness, cultural judgment, cultural adaptation, and task performance. Moon et al. (2012) argued that cultural intelligence mediates the impacts of international experience and training on cross-cultural adjustment. Lin et al. (2012) believed that cultural intelligence exerts a positive impact on cross-cultural adjustment and helps individuals to adapt to different cultures. Engle & Crowne (2014) demonstrated that the cultural intelligence of expatriates is beneficial for their adjustment, cultural effectiveness, and performance. Jyoti & Kour (2015) indicated that cultural intelligence facilitates individuals' task performance and cultural adjustments exert a mediating effect. Stoermer et al. (2021) found that expatriates' cultural intelligence will help them take advantage of the contexts in the host firm, increase their organizational embeddedness, and promotes their willingness to share knowledge.

Specifically, recent studies have started to pay attention to the impact of cultural intelligence at the executive level on leadership effectiveness and firm outcomes. In terms of leadership effectiveness, Ng et al., (2009) pointed out that cultural intelligence helps global leaders to increase their possibility to participate in experiential learning, and thus improves their self-efficacy and effectiveness of their leadership. Rockstuhl et al. (2011) revealed that leaders

who have a high level of cultural intelligence could deal with various expectations as well as exclusionary reactions in different cultures and thus show a higher level of cross-border leadership effectiveness. Kim & Van Dyne (2012) proposed that cultural intelligence may help to predict international leadership potential, which is beneficial to transform prior cross-cultural contact into leadership potential. In terms of firm-level outcomes, Groves & Feyerherm (2011) discussed the effect of leaders' cultural intelligence on team performance and leader performance perceived by their subordinates. Magnusson et al. (2013) argued that export managers' cultural intelligence positively moderates the connection between firms' marketing adaptation and export performance. Charoensukmongkol (2015) demonstrated that entrepreneurs' cultural intelligence exerts a positive influence on the quality of firms' connection ties with foreign partners. Charoensukmongkol (2016) revealed that firm owners' cultural intelligence facilitates firms' international performance, and firms' acquisition and adaptive capacity play mediating roles. Kadam et al. (2019) pointed out a positive connection between owners' cultural intelligence of small and medium enterprises and firm performance and argued that entrepreneurial orientation mediates their connection. Tuan (2016) demonstrated that managers' cultural intelligence influences supply chain performance by affecting corporate social responsibility and trust.

Some scholars have also investigated the influence of the cultural intelligence at the team or firm level. For instance, at the team level, Moynihan

et al. (2006) argued that the team-level cultural intelligence is beneficial to team cohesion, intragroup trust, and team performance. And a multinational team with diverse experience, stronger mixed norms, open communication, and high team performance will show higher cultural intelligence. Adair et al. (2013) believed that the cultural intelligence of multicultural teams promotes shared values in teams. Moon (2013) found empirical support for the positive correlation between team cultural intelligence and team performance. Chen & Lin (2013) pointed out that cultural intelligence promotes knowledge sharing in multi-cultural teams, and the perceived team efficacy mediates their positive correlation. Ratasuk & Charoensukmongkol (2020) believed that teams with high cultural intelligence tend to share knowledge in teams and show higher innovative performance. At the firm level, Ang & Inkpen (2008) proposed a theoretical framework of firm cultural intelligence and developed items to measure it. Drawing on the dynamic capability perspective, Moon (2010) developed an organizational cultural intelligence framework and discussed the connection between firm cultural intelligence and firm performance. Yitmen (2013) argued that firm cultural intelligence will influence the strategic alliancing ability of foreign contracting firms.

The main research on cultural intelligence at different levels can be concluded in Table 8.

Table 8 research on cultural intelligence at different levels

Research level	Reference	Findings
Individual-level	Ang et al. (2007)	Cultural intelligence positively influences individuals' decision-

		making effectiveness, cultural judgment and adaptation, and task performance.
	Rockstuhl et al. (2011)	Leaders who have high cultural intelligence show a higher level of cross-border leadership effectiveness.
	Lin et al. (2012)	Cultural intelligence exerts a positive impact on cross-cultural adjustment.
	Magnusson et al. (2013)	Export managers' cultural intelligence shows a positive moderating effect on the connection between firms' marketing adaptation and export performance.
	Engle & Crowne (2014)	Cultural intelligence of expatriates helps to facilitate their adjustment, cultural effectiveness, and performance.
	Stoermer et al. (2021)	Expatriates' cultural intelligence will help them take advantage of the contexts in the host firm, increase their organizational embeddedness, and promotes their willingness to share knowledge.
Team-level	Moynihan et al. (2006)	Team-level cultural intelligence helps to facilitate intragroup trust, team cohesion, and team performance.
	Adair et al. (2013)	Cultural intelligence promotes shared values in multicultural teams
	Moon (2013)	Team cultural intelligence contributes to improving team performance and weakening the negative influence of cultural diversity in teams on team performance.
	Ratasuk & Charoensukmongkol (2020)	Team-level cultural intelligence is beneficial to knowledge sharing in teams and promotes innovative performance
Organization-level	Ang & Inkpen (2008)	Firm-level cultural intelligence is made up of managerial, competitive, and structural cultural intelligence and a 28-item scale is developed to measure it.
	Moon (2010)	Organizational cultural intelligence positively affects firms' international

	performance and thus facilitating overall firm performance.
Yitmen (2013)	Firm cultural intelligence will influence the strategic alliancing ability of foreign contracting firms

In a word, although some studies have paid attention to the influence of cultural intelligence at the executive level on firm-level outcomes, prior research on cultural intelligence concentrated on the individual level but paid little attention to the team or firm level, especially the effect of TMT's cultural intelligence in foreign subsidiaries on their innovation.

2.3. TMT and firm-level outcomes

On the basis of the upper echelons theory (UET), the experiences and personalities of top managers affect the personalized interpretations of the contexts they are faced with and thereby influence their actions (Hambrick, 2007). And the characteristics of the top management team (TMT) are more predictive for firm strategies and outcomes compared with those of individual top managers (Hambrick & Mason, 1984).

Extant research has explored the impact of various characteristics of top management teams on organizational outcomes, such as foreign direct investment (Barkema & Shvyrkov, 2007; Nielsen & Nielsen, 2011), firm innovation (Boone et al., 2019; Talke et al., 2011), firm performance (Buyl et al., 2011; Carpenter & Sanders, 2002; Nielsen & Nielsen, 2013), and corporate social responsibility (Dahms et al., 2021; Huang et al., 2020).

Innovation is a critical strategy of firms, which obtained great attention in

practice and theory. Top management teams (TMT) are key decision-makers of the innovation strategy and play important roles in the innovation process of firms (Talke et al., 2011). Prior studies have explored TMT's various characteristics on firm innovation. Overall, the studies on TMT characteristics can be categorized into three sets, that is demographic, psychological, and interactive characteristics.

According to Hambrick & Mason (1984), both demographic (or observable) and psychological characteristics can affect the strategic choices of top management teams, and eventually influence firm performance, including profitability, growth, innovation, etc. A proliferation of studies have paid attention to the effect of CEOs' demographic and psychological features on firm performance. CEOs' characteristics are individual-level constructs, but the demographic and psychological characteristic of TMT reflects the joint feature of a team, which is a powerful predictor of firms' strategies.

From the aspect of demographic characteristics, both the overall background of teams and the diversity in the top management teams would affect the strategic decision-making process of TMT, and thus influence firm-level outcomes. Many studies have examined the impact of backgrounds of TMT on firm innovation, including TMT average age (Zhu & Yin, 2016), educational background (Bantel & Jackson, 1989), specific-industry experience, and firm-founding experience (Kor, 2003). In addition, the within team diversity also affect the strategic choices of TMT, including gender diversity (Dezsoe &

Ross, 2012), nationality diversity (Boone et al., 2019), educational background diversity (Bell et al., 2011; Henneke & Lüthje, 2010), and functional heterogeneity (Kor, 2006). Some of the studies on the connection between TMT's demographic characteristics and firm innovation are summarized in Table 9.

Table 9 TMT's demographic characteristics and firm innovation

Reference	Demographics	Findings
Zhu & Yin (2016)	TMT average age, female percentage, educational level, output functional experience, social contacts	The average age and female percentage of TMT are negatively correlated with a company's R&D intensity, while TMT's average education level, output functional experience, and social contacts are positively correlated with R&D intensity.
Bantel & Jackson (1989)	TMT average age, education level, tenure, as well as the heterogeneity in age, educational background, tenure, and functional background	The banks managed by TMT with a higher degree of educational level and functional diversity are more innovative.
Kor (2003)	TMT firm-founding experience, industry-specific experience	TMT members' firm-founding experience and industry-specific experience can make contributions to seizing new growth opportunities.
Dezsoe & Ross (2012)	TMT gender diversity	Gender diversity in TMT improves firm performance for innovation-oriented firms, in which context gender diversity can bring informational and social benefits.
Boone et al. (2019)	TMT's nationality diversity	TMT members' nationality diversity positively affects corporate entrepreneurship, and thus facilitates firm innovation.
Bell et al. (2011)	TMT functional background, organizational tenure,	(1) TMT's functional background diversity is

	educational background diversity	positively correlated with the general performance, creativity, and innovation of the team. (2) TMT's educational diversity is beneficial to team creativity and innovation.
Kor (2006)	TMT tenure, experience, functional heterogeneity	If the tenure of top management team is longer, shared experience is more, or the functional heterogeneity is higher, then the R&D investment level of enterprises will be lower.
Henneke & Lüthje (2010)	TMT educational heterogeneity	While there's no direct link between educational heterogeneity and product innovativeness, this relationship is mediated by strategic planning variables.
Zahra & Wiklund (2010)	TMT functional heterogeneity	TMT functional heterogeneity is beneficial to product innovation, and the benefit is stronger with a high level of social integration among TMT members.
Talke et al. (2011)	TMT educational diversity, industry diversity, functional diversity, organizational background	TMT educational, industry, functional, and organizational background diversity positively influences the firms' innovation orientation.

From the aspect of psychological characteristics, psychological characteristics can be commonly divided into two categories, including personality traits and cognitive characteristics.

As a group instead of an individual, a TMT's personality trait is described as personality composition, referring to the average level of a particular personality trait of TMT members. The reason why personality can be analyzed on a team level is that personalities are functionally equivalent across different

levels (Bell & Suzanne, 2007). TMT's overall personality traits can influence the decision style of the management team. Lin & Rababah (2014) found that TMT neuroticism has a negative effect, while TMT conscientiousness, agreeableness, extraversion, and openness can promote TMT psychological empowerment, and thereby improve decision quality. Using data from 156 TMTs of new ventures from China, Dai et al. (2019) found that the TMT's extraversion, conscientiousness, agreeableness, and openness to experience help to facilitate the performance of a new venture.

TMT's cognitive or behavioral characteristics would also greatly impact the firms' strategic decision-making. Daellenbach et al. (1999) found that top management teams' technical orientation positively affects firms' R&D intensity. Talke et al. (2010) argued that task-oriented TMT diversity promotes innovativeness and performance of firms. Chen et al. (2015) suggested that TMT attention to innovation is positively connected with a firm's patent application. Raffaelli et al. (2019) proposed that TMT's framing flexibility, defined as the ability to reframe an innovation's potential fit with the firm, may help the firms to adopt and broaden the organization's innovation practices.

Besides the demographic and psychological characteristics of TMT mentioned above, the interactive features within the TMT would also affect the firm-level innovation, which is peculiar to a team. The communication and collaboration quality among team members would determine the cohesion and mutual trust of the team, which would eventually affect the decision-making

process. Afshar & Alexander (2017) found that TMT behavioral integration, reflecting TMT's collaborative behavior and joint decision making, is positively and significantly correlated with TMT innovativeness and the likelihood of the firm to engage in sustainability-oriented actions. Urtaín et al. (2009) proposed that TMT's reflexivity, referring to the degree of individuals' participation in the team's decision making and goal setting, have a positive influence on innovation. Chen et al. (2005) proposed that cooperative conflict management of TMT can promote TMT effectiveness that in turn results in organizational innovation. Alexiev et al. (2010) believed that internal and external advice seeking of TMT plays an essential role in facilitating an organization's exploratory innovation, and TMT heterogeneity facilitates firms to act based on internal advice.

Chapter 3 Theoretical Framework

3.1. Managerial cultural intelligence and marketing agility

Marketing agility indicates companies' capability to detect and respond to market changes rapidly by reconfiguring internal resources and providing appropriate products (Khan, 2020; Zhou et al., 2019). In order to remain marketing agility, top management teams need to understand the market well where they operate (Nemkova, 2017) and identify opportunities and respond to market changes quickly (Osei et al., 2019). Especially for foreign subsidiaries, who are unfamiliar with the local market due to the liability of foreignness. Top management teams are required to understand differences in cultures and development stages of different countries, and adapt or alter their strategies to

the local market (Gomes et al., 2020). Therefore, the cultural intelligence of top management teams, namely, managerial cultural intelligence, becomes a valuable resource of a firm (Ang & Inkpen, 2008) to keep marketing agility, especially for foreign subsidiaries.

For one thing, cultural intelligence helps top management teams understand different cultures and identify international opportunities (Lorenz et al., 2018), and thus making effective strategies to facilitate marketing agility. It is not easy for firms to identify and assess opportunities in global markets (Zahra, 2005). Cultural intelligence of top management teams enhances their ability to understand the demands of local clients as well as capability to recognize potential threats opportunities, and strengthens foreign subsidiaries' flexibility to respond to the changes in local markets quickly (Kadam et al., 2019). Top management teams in foreign subsidiaries with high cultural intelligence show high sensitivity and awareness to local environments and are more interculturally open and conscious of differences in various cultures (Afsar et al., 2020). They can better adjust to the local values, show greater confidence and effectiveness in dealing with conflicts in the host country and are more willing to support the strategies to adapt to the local markets (Pauluzzo, 2021). By building good connections with stakeholders in cross-culture interactions, top management teams with high cultural intelligence can obtain more market intelligence (Tuan, 2015) and better identify international opportunities in international markets (Lorenz et al., 2018). Cultural intelligence helps them

better estimate what kinds of activities will be supported or resisted by people from different cultures (Afsar et al., 2020), and what kinds of products or services will be accepted by the local market, and thus adjust their strategies according to market changes. Moreover, cultural intelligence emphasizes agility in cross-cultural contexts (Wu & Ang, 2011). Top management teams with high cultural intelligence show a high level of creativity in making decisions (Altinay et al., 2020), and will adjust their actions according to cultural specificities (Berraies, 2019). The creativity of decision-makers is critical for developing the marketing agility of firms (Nemkova, 2017). Top management teams in foreign subsidiaries with high cultural intelligence can combine their knowledge of different cultures (Lorenz et al., 2018) to make effective and flexible strategies and adjust products, promotion, and pricing activities in response to demand changes in local markets (Pauluzzo, 2021).

For the other, managerial cultural intelligence help top management teams better implement strategies to facilitate marketing agility. Cultural intelligence helps top managers to blend in multi-cultural contexts and cooperate with potential partners from different cultures (Goelgeci et al., 2017). Top managers with high cultural intelligence have flexible cognitive structures (Yunlu et al., 2017), and open attitudes towards collaboration with individuals from different cultures (Hu et al., 2019). They can make full use of the knowledge and expertise of members in teams (Ratasuk & Charoensukmongkol, 2020), better communicate with employees and set culturally appropriate goals (Elenkov &

Manev, 2009) to motivate them to spark creative ideas (Berraies, 2019), and negotiate with potential partners (Imai & Gelfand, 2010). Specifically, from the aspect of top management teams, Top management teams in foreign subsidiaries are usually made up of members from different cultures, and thus the impact of cultural intelligence is more significant in making full use of the knowledge and expertise of different members to make effective strategies to facilitate marketing agility (Ratasuk & Charoensukmongkol, 2020). From the aspect of employees, employees in foreign subsidiaries are from various cultural backgrounds (Afsar et al., 2020). Although diversity in employees from different cultures provides various knowledge (Bogers et al., 2018; Boone et al., 2019), it also results in social comparison and self-categorization (Tsui et al., 1992), increases the conflicts among members and reduces firm efficiencies (Palich & Gomez-Mejia, 1999). Cultural intelligence is beneficial to attenuate the adverse impact of the social categorization process, which exerts a positive impact on reducing knowledge hiding (Bogilovic et al., 2017). Top managers with high cultural intelligence have open attitudes towards collaboration with individuals from diverse cultures (Hu et al., 2019). They can better communicate with these employees and set culturally appropriate goals (Elenkov & Manev, 2009) and motivate employees to release their potential and integrate their knowledge to spark creative ideas and adjust to market changes (Berraies, 2019). From the aspect of local stakeholders, cultural intelligence helps top management teams better negotiate with potential partners (Imai &

Gelfand, 2010), and build good connections with different stakeholders (Tuan, 2015). Through close cooperation with culturally diverse team members, employees, and partners, firms can reconfigure resources and better implement market strategies in response to market changes and grasp opportunities, and thus facilitating marketing agility.

In a word, managerial cultural intelligence enables top management teams in foreign subsidiaries better understand and forecast trends of the local market where they operate, make and implement effective strategies responding to market changes, and thus facilitating marketing agility. Therefore, the following assumption is proposed:

***Hypothesis 1:** Managerial cultural intelligence is positively associated with marketing agility in foreign subsidiaries.*

3.2. Moderating effect of internal and external environments

The impact of TMT attributes on strategic choice is closely connected with decision-making environments (Hambrick & Mason, 1984). And thus this study discussed the moderating roles of internal and external environments on the connection between managerial cultural intelligence and marketing agility. From the aspect of internal environments, organizational climate indicates a firm's structure, membership and value systems (Ashforth, 1985), which will influence employees' behaviors and firm-level outcomes (Bell et al., 2010). Therefore, I argue that the organizational learning climate within a firm exerts a positive moderating effect on the connection between managerial cultural

intelligence and marketing agility. In terms of external environments, the decisions of top managers are contingent on market contexts and I believe that market competition, market turbulence, and market complexity play positive moderating roles in the relationship between managerial cultural intelligence and marketing agility.

(1) Moderating effect of internal environment

Organizational learning climate demonstrates the degree to which the company supports and emphasizes learning (Bell et al., 2010). A high level of learning climate provides employees with opportunities and support to learn (Osagie et al., 2018) and inspires employees to explore (Maruping & Magni, 2012). The supportive climate for learning increases employees' willingness and ease to engage in organizational learning activities and share knowledge with others (Bell et al., 2010), and encourages them to devote themselves to their work and strive to achieve organizational goals (Eldor & Harpaz, 2016). Supported by the learning climate, employees improve their ability to search for information and integrate their knowledge with customers' feedback (Wang, 2015). They may believe that the information they provide is useful and valuable for firms, resulting in more information dissemination within firms (Wei & Morgan, 2004). Such a learning climate supported the bottom-up process for organizational strategies. The information and knowledge provided by employees under a high level of learning climate help top managers with high cultural intelligence to detect the demand trends and competitive dynamics and

make effective marketing strategies to facilitate marketing agility. And employees will strive to improve their competence and learning outcomes from feedback in the continuous learning process to achieve organizational goals (Naveh et al., 2015), their full engagement offers great support for top management teams with high cultural intelligence to better implement their marketing strategies. Therefore, the positive influence of managerial cultural intelligence on marketing agility will be enhanced when organizational learning climate is high. And I put forward the assumption as follows.

***Hypothesis 2:** Learning climate positively moderates the connection between managerial cultural intelligence and marketing agility.*

(2) Moderating effect of external environments

1) Moderating effect of market competition

Market competition becomes intense with the increasing number of competitors in the industry (Palmer & Wiseman, 1999) or the decreasing industry concentration (Keats & Hitt, 1988). In highly competitive markets, the actions of competitors changes quickly (Auh & Menguc, 2005) and the product life cycle becomes shorter, making it difficult to forecast the trends of market demands (Clark & Wheelwright, 1993), and the demand for top management teams to process competitive information increases. In today's fierce international competition, cultural intelligence becomes a key asset for firms to understand, function, and manage in global markets (Ng et al., 2009). Top

management teams with high cultural intelligence can better interact with people from different cultures, and thus they can build effective connections with local stakeholders to gain information of competitors from them and motivate employees to engage in competitor information acquisition proactively (Tuan, 2015). And the high-quality competitor information enables foreign subsidiaries to better respond to competitor actions and market changes by adjusting their marketing strategies. Therefore, managerial cultural intelligence becomes more important for foreign subsidiaries to develop marketing agility when market competition is high.

By contrast, when market competition is less intense, the actions of competitors and market changes are easy to predict relatively, and firms can perform well with existing routines (Auh & Menguc, 2005). In such a context, cultural intelligence becomes less important for foreign subsidiaries to collect competitive information for better adaption in local markets, and thus its positive influence on marketing agility will be weakened.

Therefore, the following assumption is proposed:

***Hypothesis 3:** Market competition positively moderates the connection between managerial cultural intelligence and marketing agility in foreign subsidiaries.*

2) Moderating effect of market turbulence

Market turbulence indicates the extent of change in customers' composition and preference (Jaworski & Kohli, 1993). When market turbulence

is high, it is difficult for firms to identify and predict the changing demands of customers (Santos-Vijande & Álvarez-González, 2007). Firms are faced with great threats as well as opportunities: on one hand, if firms are not able to catch up with the demand change, they may lose their market shares and be surpassed by their competitors; on the other hand, there are emerging new demands in highly turbulent markets, which offers new opportunities for firms (Zhou et al., 2019). Ambiguity increases in turbulent markets, which enhances managerial discretion (Li & Tang, 2010). Under such a context, firms rely more on external knowledge (Zhou et al., 2019) and have to understand the rapidly changing demand trends and need more information to make effective strategies (Wang et al., 2015), and thus managerial cultural intelligence becomes particularly critical for foreign subsidiaries to develop marketing agility. Cultural intelligence enables top management teams to learn and master other cultures' knowledge quickly (Afsar et al., 2020), process a great deal of information in highly turbulent markets, and identify more opportunities (Lorenz et al., 2018). Top managers with high cultural intelligence may display a higher level of cognitive flexibility and creativity (Yunlu et al., 2017), and thus they can view the threats and opportunities in turbulent markets in a more innovative way. They are more familiar with customers' demands in the local markets, and thus they do better in identifying shifts in markets and finding associations between trends (Lorenz et al., 2018). Cultural intelligence enables top management teams in foreign subsidiaries to make effective marketing strategies to avoid

threats and seize opportunities in response to the changing demands, and thus showing a greater influence on marketing agility when market turbulence is high.

By contrast, when market turbulence is low, the demand of customers is relatively stable and easy to predict (Cui et al., 2005; Jaworski & Kohli, 1993). Foreign subsidiaries depend less on external knowledge and information to make effective marketing strategies and the information loads for top management teams decrease in less turbulent markets. In such a context, the benefit of managerial cultural intelligence on marketing agility becomes less significant.

Therefore, I put forward the assumption as follows.

***Hypothesis 4:** Market turbulence positively moderates the connection between managerial cultural intelligence and marketing agility in foreign subsidiaries.*

3) Moderating effect of market complexity

Market complexity refers to the degree to which the market contexts faced by firms is heterogeneous and competitive (Dess & Beard, 1984). A lot of products and competing brands are offered in markets with high complexity, and customer demands are highly heterogeneous (Homburg et al., 1999). When market complexity is high, identifying market opportunities becomes more difficult for firms. Specifically, compared with local firms, foreign subsidiaries face more challenges in emerging markets with high complexity as they are not familiar with the local situations (Khan, 2020). Market complexity increases

information-processing loads for top management teams (Hambrick et al., 2005) and makes it difficult for companies to evaluate their situations and make strategies comprehensively (Souder et al., 2012). Top managers in foreign subsidiaries have to deal with diverse information from customers, competitors, suppliers, and distributors from different cultures. And thus they are in urgent need of understanding the complex market and adjusting their strategies to seize opportunities (Khan, 2020). In such a context, the positive role of cultural intelligence of top management teams becomes more significant. Managerial cultural intelligence enables top management teams to process various information, understand the customers' demand and complicated markets (Lorenz et al., 2018), and thus identify opportunities in complex markets to develop effective marketing strategies to seize market opportunities. Therefore, the positive influence of managerial cultural intelligence and marketing agility of foreign subsidiaries is enhanced when market complexity is high.

By contrast, there are fewer competitors and well-developed norms or rules in less competitive markets, and the managerial discretion of top management teams may be limited (Li & Tang, 2010). The information load for top management teams is lower (Hambrick et al., 2005), their potential cannot be fully stimulated in their marketing strategic choice, and the benefit of their cultural intelligence becomes less significant. Therefore, the positive impact of managerial cultural intelligence on marketing agility in foreign subsidiaries will be weakened when market complexity is low.

Therefore, I proposed the assumption as follows:

***Hypothesis 5:** Market complexity positively moderates the connection between managerial cultural intelligence and marketing agility in foreign subsidiaries.*

3.3. Marketing agility and innovation capability of foreign subsidiaries

As a key source of competitiveness, innovation is critical for companies to survive and develop in globalization (Papanastassiou et al., 2020). Foreign subsidiaries need to improve local responsiveness and global efficiency through innovation (Ghoshal & Bartlett, 1988). Complexity in an international context adds the difficulty of foreign subsidiaries to innovate (Fallah & Lechler, 2008), and thus they are in need of marketing agility to adjust their strategies flexibly to improve innovation capability and quickly to introduce new products to satisfy the needs of customers.

Marketing agility enables foreign subsidiaries to sense demand changes and respond to market opportunities by choosing effective new product development portfolios (Kester et al., 2014). Agility is critical for firms to deal with uncertainty generated by innovation (Teece et al., 2016), which helps companies to recognize and respond to demand changes and design new products (Cai et al., 2019). Foreign subsidiaries with strong marketing agility will actively seek potential customer needs, and design new products in response to demand changes by acquiring, releasing, integrating, and recombining resources, and thereby they show higher innovation capabilities

(Zhou et al., 2019). Agile subsidiaries are more aware of the competition and new technologies earlier than competitors, and thus they can seize market opportunities by introducing superior new products and shortening product cycles in response to market competition (Asseraf et al., 2018), showing a high innovation capability.

Therefore, marketing agility positively influences innovation capability of foreign subsidiaries, and the assumption is proposed as follows.

***Hypothesis 6:** Marketing agility is positively associated with innovation capability of foreign subsidiaries.*

3.4. Mediating role of marketing agility

Hypothesis 1 indicates that managerial cultural intelligence facilitates the marketing agility of foreign subsidiaries. Hypothesis 6 states that marketing agility is positively associated with innovation capability of foreign subsidiaries. Taken together, this study argues that managerial cultural intelligence promotes innovation capability of foreign subsidiaries via enhancing marketing agility. Namely, marketing agility plays a mediating role in the relationship between managerial cultural intelligence and innovation capability of foreign subsidiaries. And thus the following assumption is proposed:

***Hypothesis 7:** Marketing agility positively mediates the relationship between managerial cultural intelligence and innovation capability of foreign subsidiaries.*

Based on hypotheses 1-7, the theoretical model of this dissertation is summarized in Figure 1. Managerial cultural intelligence is positively associated with marketing agility. Organizational learning climate, market competition, market turbulence, and market complexity positively moderate the relationship between managerial cultural intelligence and marketing agility. Marketing agility is positively related to innovation capability of foreign subsidiaries, and plays a positive mediating role in the relationship between managerial cultural intelligence and innovation capability of foreign subsidiaries.

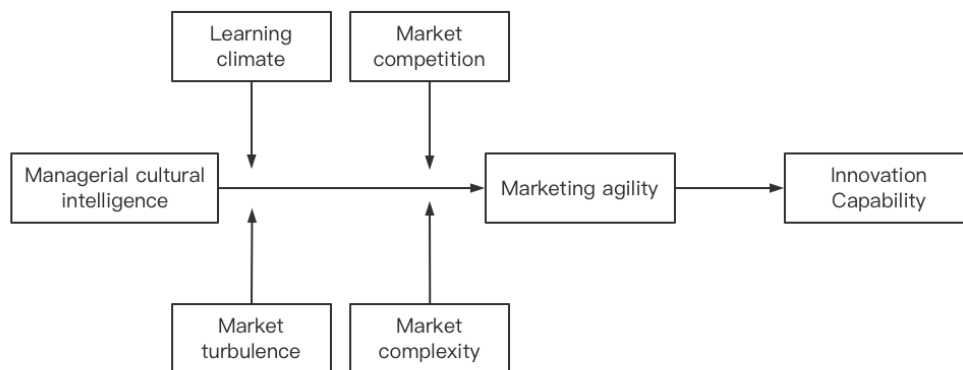


Figure 1 Theoretical model

Chapter 4 Research Design and Methodology

4.1. Sample and data collection

I verified the theoretical model of this study by using survey data of foreign subsidiaries in China. China is the largest emerging country and the second-largest economy in the world, which becomes hot for foreign direct investment, and a big number of multinational companies have set up subsidiaries in China.

Therefore, it is suitable to investigate the relationship among managerial cultural intelligence, marketing agility, and innovation capability of foreign subsidiaries in China, which can provide references for other emerging economies(Williams et al., 2017).

The sample of this study was selected from a list of clients and members provided by Daxue Consulting, American Chamber of Commerce, European Union Chamber of Commerce, and French Chamber of Commerce and Industry in China. Daxue Consulting is a China-focused market research and strategy consulting company, who offered a client list of 400 foreign subsidiaries for this survey. Daxue Consulting is founded in 2009, it is selected mainly from two aspects: first, the company is ranked first in Google with the searches keyword “Market Research in China”. It has helped many multinational companies in different industries to enter Chinese markets and set subsidiaries in China and served many large international firms such as Procter & Gamble, PayPal, Samsung, and Apple. Second, its customers' needs are mainly focused on strategic decision-making in the Chinese market, which fits the topic of this dissertation. And a member list of 800 foreign subsidiaries was obtained from American Chamber of Commerce, European Union Chamber of Commerce, and French Chamber of Commerce and Industry in China. 500 foreign subsidiaries in China were randomly chosen from the lists and senior managers who reported directly to CEOs in these subsidiaries were invited to involve in this survey.

The survey was conducted from July to December 2021, which includes two rounds. In the first round, I invited a senior manager in each foreign subsidiary to evaluate the managerial cultural intelligence, and fill in the information on their subsidiary and headquarter such as the number of employees in the subsidiary, the performance and functional scope of the subsidiary, the established year of the headquarter, and autonomy of the subsidiary in decision making. 198 senior managers returned the questionnaires in the first round. One month later after the first-round survey, the second questionnaires were sent to the 198 subsidiaries and one another senior manager in each subsidiary was invited to rate the managerial cultural intelligence, marketing agility, innovation capability, organizational learning climate, market contexts, and knowledge inflow from headquarters and sister subsidiaries. And 130 senior managers completed the second questionnaires. After excluding responses that contain contradictory answers or without key items, a final sample with 110 foreign subsidiaries was obtained.

Foreign subsidiaries in the sample come from different countries or regions such as the U.S.A, France, and Hong Kong. The sectors of foreign subsidiaries covered business services, software and information technology services, retail and wholesale, finance, manufacturing, accommodation and catering. The detailed distribution of the countries, industries, and size of foreign subsidiaries in the sample of this study is summarized in table 10.

Table 10 distribution of subsidiaries in the sample

Category		Number	Percentage
Country/ Region	U.S.A.	33	30%
	France	25	22.73%
	Hong Kong	12	10.91%
	Germany	6	5.45%
	Great Britain	6	5.45%
	Japan	6	5.45%
	Singapore	4	3.64%
	Netherlands	3	2.73%
	Switzerland	3	2.73%
	Australia	2	1.82%
	Italy	2	1.82%
	Chile	1	0.91%
	Denmark	1	0.91%
	India	1	0.91%
	Ireland	1	0.91%
	Israel	1	0.91%
	Morocco	1	0.91%
Spain	1	0.91%	
Sweden	1	0.91%	
Industry	Business services	40	36.36%
	Retail and wholesale	23	20.91%
	Software and information technology services	22	20%
	Finance	11	10%
	Manufacturing	10	9.09%
	Accommodation and catering	4	3.64%
Subsidiary size (number of employees)	less than 50	30	27.27%
	50 to 199	16	14.55%
	200 to 499	25	22.73%
	500 to 999	8	7.27%
	greater than 1000	31	28.18%
Subsidiary age	less than 5	4	3.64%
	5 to 9	25	22.73%
	10 to 19	42	38.18%
	20 to 29	36	32.73%
	greater than 30	3	2.73%

4.2. Measures

I measure the main constructs in this dissertation using scales developed and verified by prior literature. Five-point Likert scales are used to measure the

main constructs.

4.2.1 Key variables

Managerial cultural intelligence (MCQ). The measurement of managerial cultural intelligence is adapted from Ang & Van Dyne (2009), including four dimensions of metacognitive, cognitive, motivational, and behavioral CQ. Metacognitive CQ includes two items such as “TMT are aware of cultural differences when interacting with business partners from different cultural backgrounds”. Cognitive CQ includes three items such as “TMT know the cultural values and religious beliefs of other cultures”. Motivational CQ involves two items such as “TMT are confident they can work with business partners from different cultures”. And behavioral CQ includes two items such as “TMT modify their verbal behavior (words, tone, style) when a cross-cultural interaction requires it”. The managerial cultural intelligence rated by the senior manager in the first-round questionnaire is adopted in the model to attenuate the risks of common method bias. The intraclass correlation coefficients (ICC) between managerial cultural intelligence of two senior managers in each subsidiary in the two-wave survey is calculated. ICC(1) is 0.584, exceeding the acceptable level of 0.12, and ICC(2) is 0.738, exceeding the acceptable value of 0.6. Therefore, senior managers in a top management team have similar views on managerial cultural intelligence and differences exist between various top management teams (Bliese, 2000), and it is appropriate to use the answer of one senior manager to reflect managerial cultural intelligence of the top

management team. Cronbach's alpha for the scale is 0.9294. The detailed items of cultural intelligence are displayed in table 11.

Table 11 Measurement of managerial cultural intelligence

Dimension	Items
Metacognitive CQ	1) TMT are aware of cultural differences when interacting with business partners from different cultural backgrounds.
	2) TMT check the accuracy of their cultural knowledge when interacting with business partners from different cultural backgrounds.
Cognitive CQ	3) TMT know the cultural values and religious beliefs of other cultures.
	4) TMT know the legal and economic systems of other cultures.
	5) TMT know languages of other cultures.
Motivational CQ	6) TMT are confident they can work with business partners from different cultures.
	7) TMT are confident in dealing with the stresses of working with business partners from cultures that are new to them.
Behavioral CQ	8) TMT modify their verbal behavior (words, tone, style) when a cross-cultural interaction requires it.
	9) TMT modify their nonverbal behavior (gestures, time, and space orientation) when a cross-cultural interaction requires it.

Marketing agility. A four-component measurement developed by Zhou et al. (2019) is adapted in this dissertation to measure marketing agility, including four dimensions of proactiveness, responsiveness, flexibility, and speed. The detailed items of marketing agility are shown in table 12. Cronbach's alpha for the scale is 0.9398.

Table 12 Measurement of marketing agility

Dimension	Items
Proactiveness	1) We can spot the first indicators of new market threats.
	2) We create new preferences by informing customers about new benefits of our products.

Responsiveness	3) We can respond to changes in demand without overstocking or losing sales.
	4) We can respond quickly to supply volume fluctuations by having suppliers in many regions of the world.
	5) When an unexpected threat emerges, we are able to adjust through resource reconfiguration.
	6) We can react to fundamental changes with respect changing the competitor landscape.
Flexibility	7) We can market a wide variety of products within our portfolio.
	8) We can offer different products through minor modifications to existing ones.
	9) We can adjust what we offer to match market needs.
Speed	10) We can meet customer's changing needs faster than our competitors.
	11) We compress time from product concept to marketing to respond quickly to the changes in customer needs.
	12) We can quickly change our product mix in response to changing market opportunities.
	13) We are fast at changing activities that do not lead to the desired effects.

Innovation capability. Three items adapted from the scale developed by Jansen et al. (2009) are used to measure innovation capability of foreign subsidiaries, including “Our organization accepts demands that go beyond existing products and services”, “We frequently utilize new opportunities in new markets”, and “Our organization regularly uses new distribution channels”. Cronbach’s alpha for the scale is 0.7565 in this dissertation, indicating a relatively high internal consistency.

4.2.2 Moderating variables

Organizational learning climate. Four items are used to measure organizational learning climate according to Bell et al. (2010). Cronbach’s alpha for the scale is 0.9406 in this dissertation.

Market competition. It is measured by a four-item scale developed by Wilden & Gudergan (2015). Cronbach’s alpha for the scale is 0.8337 in this dissertation, indicating a high internal consistency.

Market turbulence. I use a five-item scale to measure market turbulence based on the study of Jaworski & Kohli (1993). Cronbach’s alpha for the scale is 0.8253 in this dissertation.

Market complexity. The eight items developed and verified by Homburg et al. (1999) are adopted in this dissertation to measure market complexity, whose Cronbach’s alpha is 0.8964.

The detailed items for the four moderating variables are presented in Table 13.

Table 13 Measurement of moderating variables

Construct	Items
Organizational learning climate	1) The basic values of our company include learning as a key to improvement 2) The thinking in our company is that once we quit learning, we endanger our future 3) The sense around here is that employee learning is an investment, not an expense 4) Learning in my company is seen as essential to guarantee the company’s effectiveness
Market competition	1) Competition in our industry is cutthroat. 2) There are many “promotion wars” in our industry. 3) Price competition is a hallmark of our industry 4) One hears of a new competitive move almost every day
Market turbulence	1) In our kind of business, customers' product preferences change quite a bit over time. 2) Our customers tend to look for new product all the time. 3) Sometimes our customers are very price-sensitive, but on other occasions, price is relatively unimportant. 4) We are witnessing demand for our products and services from customers who never bought them before. 5) New customers tend to have product-related needs that are different from those of our existing customers.
Market complexity	1) The number of products and brands is very high. 2) The number of people/organizations involved in the distribution process is very high. 3) The number of people involved in the buying process is

very high.

4) Communication varies very much across different customer segments.

5) Customer requirements vary a lot across different customer segments.

6) There is a lot of variety in products for sale.

7) There is a lot of variety in the type of people involved in the buying process.

8) There are many people other than direct customers who must be influenced in order to sell.

4.2.3 Control variables

The effects of the top management team, subsidiary, multinational company, and the industry are controlled in this study.

At the level of top management teams, *TMT nationality diversity* is considered because top management teams with high national diversity hold an open attitude towards different ideas, and can combine different knowledge and improve strategic decision quality for innovation (Boone et al., 2019) and respond to market changes. I use a categorical variable about the total number of different countries where managers in the top management team of each subsidiary come from to measure TMT nationality diversity ((1=less than 3, 2=3 to 4, 3=5 to 6, 4=7 to 8, and 5=greater than 8).

At the level of subsidiaries, I control the influence of subsidiary size, age, and performance, as well as the functional scope of the subsidiary in China. *Subsidiary size* is controlled given that larger subsidiaries have more resources for innovation (Ettlie & Rubenstein, 1987) and can gather high-quality information of markets and developing agility (Chuang, 2020), which is measured by a categorical variable about the total number of employees in the

subsidiary (1=less than 50, 2=50 to 199, 3=200 to 499, 4=500 to 999, and 5=greater than 1000). *Subsidiary age* is considered in this model because the complexity faced by subsidiaries increases with the growth of age (Hussinger & Wastyn, 2016), which may influence the marketing agility and innovation of subsidiaries. It is calculated as the logarithm of the overall number of years since the subsidiary was founded. *Subsidiary performance* is controlled because financial resources are critical for developing marketing agility and conducting innovation activities, which is measured by a three-item scale following Worren, Moore, & Cardona (2002). Its Cronbach's alpha is 0.9095 in this study, suggesting a high internal consistency. The impact of ownership type is controlled. A dummy variable, *WFOE dummy*, is included in the model which is given a value of 1 if the subsidiary is a wholly foreign-owned enterprises, and 0 for other types (Li et al., 2013). Subsidiary functional scope is measured by the total number of activities conducted by the subsidiary (Bouquet & Birkinshaw, 2008). Senior managers are asked to indicate which activities the subsidiary performs from eight activities: 1) product sales and after-sales service; 2) sale of professional services; 3) marketing; 5) manufacturing; 6) distribution/logistics; 7) research and development (R&D); 8)provision of strategic service; 8) "back office" support. A wider functional scope suggests that the subsidiary can better develop and adapt to local markets in China (Pu & Soh, 2018), and generate more knowledge and ideas (Mudambi et al., 2007) to promote innovation capability of foreign subsidiaries.

At the level of multinational companies, I control the characteristics of the headquarter and the interaction between subsidiaries and the headquarter. *HQ age* is measured by the logarithm of the overall number of years since the multinational company was founded. *Subsidiary autonomy* is controlled and measured by a five-item scale following Bouquet & Birkinshaw (2008), because autonomy allows subsidiaries to innovate to seize market opportunities (Cronbach's alpha=0.8422). Managers are required to evaluate the decision-making autonomy in different activities. *Knowledge inflow* is included in this model because it is positively related to the acquisition and absorption of new ideas and knowledge for developing marketing agility and innovation, measured by a seven-item scale following Gupta & Govindarajan (2000). Senior managers are asked to assess the extent to which the subsidiary receive knowledge and skills from sister subsidiaries and the headquarter (Cronbach's alpha=0.8996).

At the industry level, the industry effects are controlled by including industry dummies given the different technological trajectories in different industries (Soluk et al., 2021).

The detailed measurement of subsidiary performance, autonomy, and knowledge inflow are displayed in Table 14.

Table 14 Measurement of subsidiary performance, autonomy, and knowledge inflow

Construct	Items
Subsidiary performance	1) Over the past 3 years, our financial performance has been outstanding 2) Over the past 3 years, our financial performance has exceeded our competitors' 3) Over the past 3 years, our sales growth has exceeded

	our competitors'
	<hr/>
	Please select the decision-making autonomy of your company in the following decisions:
	1) Discontinuing a major existing product or product line
	2) Investing in major plant or equipment to expand manufacturing capacity
Subsidiary autonomy	3) Formulating and approving your subsidiary's annual budgets
	4) Increasing (beyond budget) expenditures for research and development
	5) Subcontracting out large portions of the manufacturing (instead of expanding the subsidiary's own facilities).
	<hr/>
	To what extent during the last year has your subsidiary received knowledge from your headquarter and sister subsidiaries in the area of:
	1) Marketing know-how
	2) Distribution know-how
Knowledge inflow	3) Packaging design/technology
	4) Product designs
	5) Process designs
	6) Purchasing know-how
	7) Management systems and practices

Chapter 5 Results

5.1. Validity and reliability

The Cronbach's alphas for main variables in this study are greater than 0.7, suggesting high reliability of the constructs used in this dissertation.

The confirmatory factor analysis (CFA) is conducted. A ten-factor model including managerial cultural intelligence, marketing agility, innovation capability of foreign subsidiaries, organizational learning climate, market competition, market turbulence, market complexity, subsidiary autonomy, subsidiary performance, and knowledge inflow is explored. The model fits the data well ($\chi^2(549) = 873.73, p \leq .01; CFI = .901, SRMR = .053, RMSEA = .073$).

In order to check the discriminant validity, alternative models with fewer

factors are examined, and the model comparison results are displayed in Table 15.

Table 15 CFA model comparison

Model	χ^2	Df	CFI	SRMR	RMSEA
Ten-factor model	873.73	549	.901	.053	.073
Nine-factor model 1 (managerial cultural and innovation capability combined)	1078.067	558	.841	.094	.092
Nine-factor model 2 (managerial cultural and marketing agility combined)	1280.268	558	.779	.095	.108
Nine-factor model 3 (managerial cultural and learning climate combined)	1228.439	558	.795	.098	.105
Nine-factor model 4 (managerial cultural and market competition combined)	973.795	558	.873	.070	.082
Nine-factor model 5 (managerial cultural and market turbulence combined)	1078.365	558	.841	.107	.092
Nine-factor model 6 (managerial cultural and market complexity combined)	1172.353	558	.812	.120	.100
Nine-factor model 7 (marketing agility and innovation capability combined)	986.399	558	.869	.060	.084
One-factor model	2603.779	594	.386	.141	.175

As shown in the table, the ten-factor model fits the data much better compared with other models, suggesting high discriminant validity.

In order to check the convergent validity, standardized factor loadings are examined. The results show that all factor loadings are significant, and standardized factor loadings are above the accepted level of 0.40, indicating a high convergent validity.

5.2. Common method bias

Given that most of the data used in this study are self-reported, common method bias may be a problem (Podsakoff, 2003). In order to minimize the potential risks of common method bias, various measures are taken in this study.

First of all, I collect data of variables from different sources. Specifically, the dependent variable and independent variable of this study are reported by different senior managers in each subsidiary, reducing the respondents' perception of connections between constructs.

Second, the confidentiality and anonymity of responses are highlighted during the survey to reduce their concern for evaluation and the influence of social desirability (Randall & Fernandes, 1991).

In addition, Harman's one-factor test is conducted to test the common method bias. The results show that fourteen factors with eigenvalues greater than 1 are extracted, which ranges from 1.68% to 26.88%. No one factor can account for the majority of the variance, and thereby the risks of the common method bias are low in this study (Fuller et al., 2016).

5.3. Reverse causality

In order to minimize the concern for reverse causality, the data of mediating variable and dependent variable are collected one month after the data of the independent variable is collected. Moreover, managerial cultural intelligence is a relatively stable trait of top management teams, which will not be much affected by the marketing agility and firm innovation. Therefore, reverse causality is not a serious problem in this study.

5.4. Descriptive statistics and correlations

The descriptive statistics of the main variables are displayed in Table 16. Foreign subsidiaries in our sample show relatively high managerial cultural intelligence with a mean value of 4.265. 90% of subsidiaries are wholly foreign-

owned firm.

Table 16 descriptive statistics

Variable	Mean	SD	Min	Max
1. Managerial cultural intelligence	4.265	0.628	2.444	5.000
2. Marketing agility	3.748	0.734	1.923	5.000
3. Innovation capability	3.773	0.777	1.333	5.000
4. Learning climate	4.286	0.796	1.500	5.000
5. Market competition	3.686	0.897	1.250	5.000
6. Market turbulence	3.665	0.715	1.400	5.000
7. Market complexity	3.663	0.766	1.500	5.000
8. TMT nationality diversity	1.691	1.011	1.000	5.000
9. Subsidiary age	2.710	0.523	1.386	3.611
10. Subsidiary size	2.945	1.567	1.000	5.000
11. Subsidiary performance	3.676	1.016	1.000	5.000
12. WFOE dummy	0.900	0.301	0.000	1.000
13. Functional scope	3.918	2.095	1.000	8.000
14. HQ age	3.865	0.835	1.792	5.153
15. Subsidiary autonomy	2.665	0.984	1.000	5.000
16. Knowledge inflow	3.655	0.831	1.714	5.000

The correlations between the main variables are reported in Table 17. As predicted, managerial cultural intelligence is positively correlated to marketing agility, and marketing agility is positively connected with innovation capability. The correlation coefficients are relatively small and the variance inflation factor (VIF) test (Wooldridge, 2010) indicates that the mean value of VIF is 1.11, and the largest VIF is 2.40 which are well below 10. Therefore, multicollinearity was not a significant problem in this study (Chatterjee & Hadi, 1977).

Table 17 Correlations between variables

Variables	1	2	3	4	5
1. Managerial cultural intelligence	1.000				
2. Marketing agility	0.355***	1.000			
3. Innovation capability	0.371***	0.649***	1.000		
4. Learning climate	0.457***	0.483***	0.480***	1.000	

5. Market competition	0.121	0.222**	0.306***	0.106	1.000
6. Market turbulence	0.296***	0.406***	0.477***	0.460***	0.207**
7. Market complexity	0.322***	0.462***	0.419***	0.417***	0.345***
8. TMT nationality diversity	-0.069	0.166*	0.081	0.080	-0.047
9. Subsidiary age	-0.129	0.012	-0.130	-0.042	-0.196**
10. Subsidiary size	0.100	0.239**	0.153	0.101	0.082
11. Subsidiary performance	0.406***	0.221**	0.221**	0.152	-0.038
12. WFOE dummy	-0.047	-0.134	-0.137	-0.071	-0.168*
13. Functional scope	-0.073	0.034	0.047	0.022	-0.114
14. HQ age	-0.072	-0.054	-0.077	-0.013	-0.070
15. Subsidiary autonomy	0.097	0.142	0.024	-0.007	0.071
16. Knowledge inflow	0.216**	0.318***	0.402***	0.422***	0.096

Variables	6	7	8	9	10
6. Market turbulence	1.000				
7. Market complexity	0.583***	1.000			
8. TMT nationality diversity	0.117	0.218**	1.000		
9. Subsidiary age	-0.016	0.110	0.198**	1.000	
10. Subsidiary size	0.236**	0.449***	0.452***	0.318***	1.000
11. Subsidiary performance	0.015	0.068	0.166*	-0.007	0.250***
12. WFOE dummy	-0.131	-0.143	-0.042	0.186*	-0.051
13. Functional scope	0.029	0.173*	0.278***	0.411***	0.457***
14. HQ age	-0.034	0.176*	0.267***	0.490***	0.306***
15. Subsidiary autonomy	-0.189**	-0.118	0.094	0.035	0.026
16. Knowledge inflow	0.515***	0.471***	0.182*	0.025	0.324***

Variables	11	12	13	14	15	16
11. Subsidiary performance	1.000					
12. WFOE dummy	-0.047	1.000				
13. Functional scope	0.167*	0.045	1.000			
14. HQ age	0.105	0.069	0.192**	1.000		
15. Subsidiary autonomy	0.080	-0.015	0.109	-0.072	1.000	
16. Knowledge inflow	0.096	-0.192**	0.146	0.122	-0.075	1.000

N=110, *** p<0.01, ** p<0.05, * p<0.1

5.5. Hypotheses testing

Ordinary least squares (OLS) regression analysis is adopted to validate the theoretical model of this study. The regression results on marketing agility are displayed in Table 18 to test hypotheses 1-5 in this study.

Table 18 Regression results on marketing agility

	Model 1	Model 2	Model 3	Model 4	Model 5
TMT nationality diversity	0.084 (0.074)	0.060 (0.070)	0.090 (0.073)	0.072 (0.071)	0.068 (0.070)
Subsidiary age	0.188 (0.161)	0.176 (0.151)	0.253 (0.159)	0.176 (0.154)	0.229 (0.155)
Subsidiary size	0.065 (0.055)	0.076 (0.051)	0.050 (0.054)	0.041 (0.053)	0.010 (0.054)
Subsidiary performance	0.065 (0.073)	0.079 (0.069)	0.093 (0.072)	0.101 (0.071)	0.117 (0.071)
WFOE dummy	-0.107 (0.224)	-0.146 (0.210)	-0.089 (0.221)	-0.106 (0.214)	-0.087 (0.213)
Functional scope	-0.039 (0.038)	-0.045 (0.036)	-0.041 (0.038)	-0.040 (0.037)	-0.055 (0.037)
HQ age	-0.210** (0.100)	-0.185* (0.094)	-0.217** (0.098)	-0.178* (0.096)	-0.215** (0.094)
Subsidiary autonomy	0.063 (0.068)	0.091 (0.065)	0.065 (0.068)	0.126* (0.068)	0.130* (0.067)
Knowledge inflow	0.223** (0.090)	0.126 (0.090)	0.213** (0.087)	0.136 (0.094)	0.133 (0.089)
MCQ	0.278** (0.121)	0.133 (0.123)	0.283** (0.119)	0.224* (0.120)	0.162 (0.121)
Learning climate		0.382*** (0.099)			
MCQ*Learning climate		0.207* (0.118)			
Market competition			0.129 (0.080)		
MCQ*Market competition			0.237** (0.117)		
Market turbulence				0.227* (0.114)	
MCQ*Market turbulence				0.331** (0.165)	
Market complexity					0.342*** (0.105)
MCQ*Market complexity					0.232* (0.136)
Constant	2.075** (0.792)	3.268*** (0.656)	2.811*** (0.687)	3.059*** (0.659)	3.105*** (0.666)

Industry effects	Yes	Yes	Yes	Yes	Yes
<i>N</i>	110	110	110	110	110
<i>R</i> ²	0.291	0.391	0.340	0.369	0.382

Note: MCQ refers to managerial cultural intelligence. Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Hypothesis 1 indicates that managerial cultural intelligence facilitates the marketing agility of foreign subsidiaries. In model 1, managerial cultural intelligence is positively and significantly associated with marketing agility ($b=0.278$, $p<0.05$), providing evidence for hypothesis 1. When managerial cultural intelligence in foreign subsidiaries improves by 1 SD, marketing agility increases by 0.175.

Hypothesis 2 suggests that organizational learning climate in foreign subsidiaries plays a positive moderating role in the positive relationship between managerial cultural intelligence and marketing agility. In model 2, the coefficient of the interaction term between managerial cultural intelligence and learning climate is positive and significant at 10% level ($b=0.207$, $p<0.1$), offering support for hypothesis 2. And the moderating effect of organizational learning climate is shown in Figure 3. When organizational learning climate in foreign subsidiaries is high ($M+1SD$), managerial cultural intelligence is significantly and positively related to marketing agility (conditional effect= 0.281 , $p<0.1$). And the marketing agility of subsidiaries operated by top management teams with high cultural intelligence ($M+1SD$) compared to those with low cultural intelligence ($M-1SD$) increases by 9.8%. By contrast, when

organizational learning climate is low (M-1SD), the relationship between managerial cultural intelligence and marketing agility becomes not significant (conditional effect=-0.033, $p>0.1$). And the marketing agility of subsidiaries operated by top management teams with high cultural intelligence (M+1SD) compared to those with low cultural intelligence (M-1SD) even decreases by 1.2%. Therefore, organizational learning climate helps to enhance the positive impact of managerial cultural intelligence on marketing agility. To visually display the moderating effect of organizational learning climate, the differences in the relationship between managerial cultural intelligence and marketing agility under different levels of organizational learning climate are depicted in Figure 2.

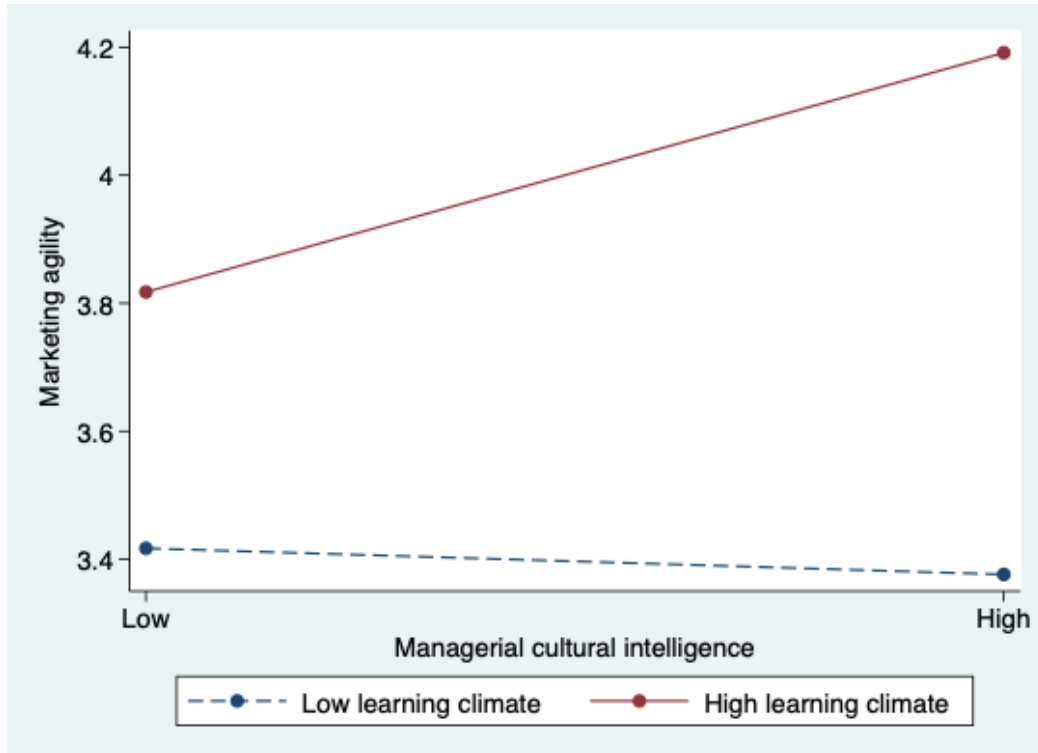


Figure 2 Moderating effect of organizational learning climate on the relationship between managerial cultural intelligence and marketing agility

Hypothesis 3 assumes that market competition positively moderates the positive relationship between managerial cultural intelligence and marketing agility of foreign subsidiaries. In model 3, the coefficient of the interaction term between managerial cultural intelligence and market competition is positive and significant at 5% level ($b=0.237$, $p<0.05$), giving evidence for hypothesis 3. When market competition is high ($M+1SD$), managerial cultural intelligence is significantly and positively related to marketing agility (conditional effect= 0.496 , $p<0.05$). And the marketing agility of subsidiaries operated by top management teams with high cultural intelligence ($M+1SD$) compared to those with low cultural intelligence ($M-1SD$) increases by 17.6%. Whereas when market competition is low ($M-1SD$), managerial cultural intelligence is not significantly related to marketing agility (conditional effect= 0.071 , $p>0.1$). And the marketing agility of subsidiaries operated by top management teams with high cultural intelligence ($M+1SD$) compared to those with low cultural intelligence ($M-1SD$) increases by only 2.5%. Therefore, the positive influence of managerial cultural intelligence on marketing agility will be enhanced when market competition is fierce, confirming hypothesis 3. The moderating effect of market competition on the relationship between managerial cultural intelligence and marketing agility is presented in Figure 3.

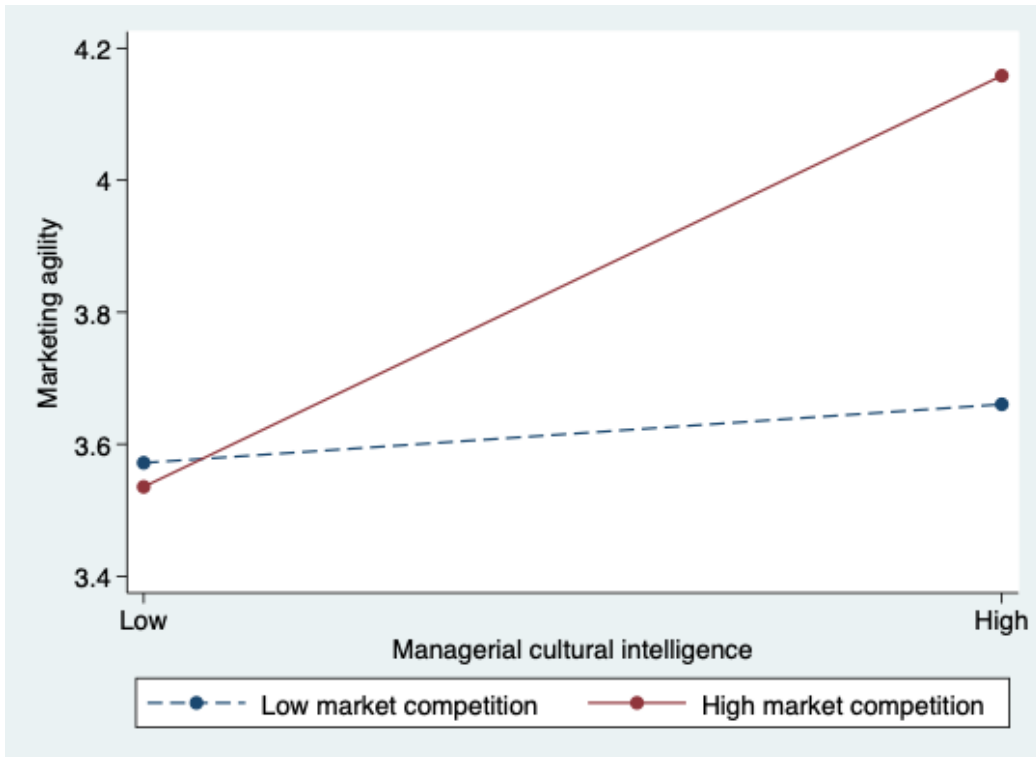


Figure 3 Moderating effect of market competition on the relationship between managerial cultural intelligence and marketing agility

Hypothesis 4 indicates that market turbulence will enhance the positive impact of managerial cultural intelligence on marketing agility. In model 4, the coefficient of the interaction term between managerial cultural intelligence and market turbulence is positive and significant at the 5% level ($b=0.331$, $p<0.05$), confirming hypothesis 4. When market turbulence is high ($M+1SD$), managerial cultural intelligence is significantly and positively related to marketing agility (conditional effect= 0.460 , $p<0.05$). And the marketing agility of subsidiaries operated by top management teams with high cultural intelligence ($M+1SD$) compared to those with low cultural intelligence ($M-1SD$) increases by 16.1%. By contrast, when market turbulence is low ($M-1SD$), managerial cultural

intelligence is not significantly related to marketing agility (conditional effect=-0.013, $p>0.1$). And the marketing agility of subsidiaries operated by top management teams with high cultural intelligence (M+1SD) compared to those with low cultural intelligence (M-1SD) even decreases by 0.5%. Therefore, market turbulence helps to strengthen the positive impact of managerial cultural intelligence on marketing agility. To visually display the moderating effect of market turbulence, the differences in the relationship between managerial cultural intelligence and marketing agility under different levels of market turbulence are depicted in Figure 4.

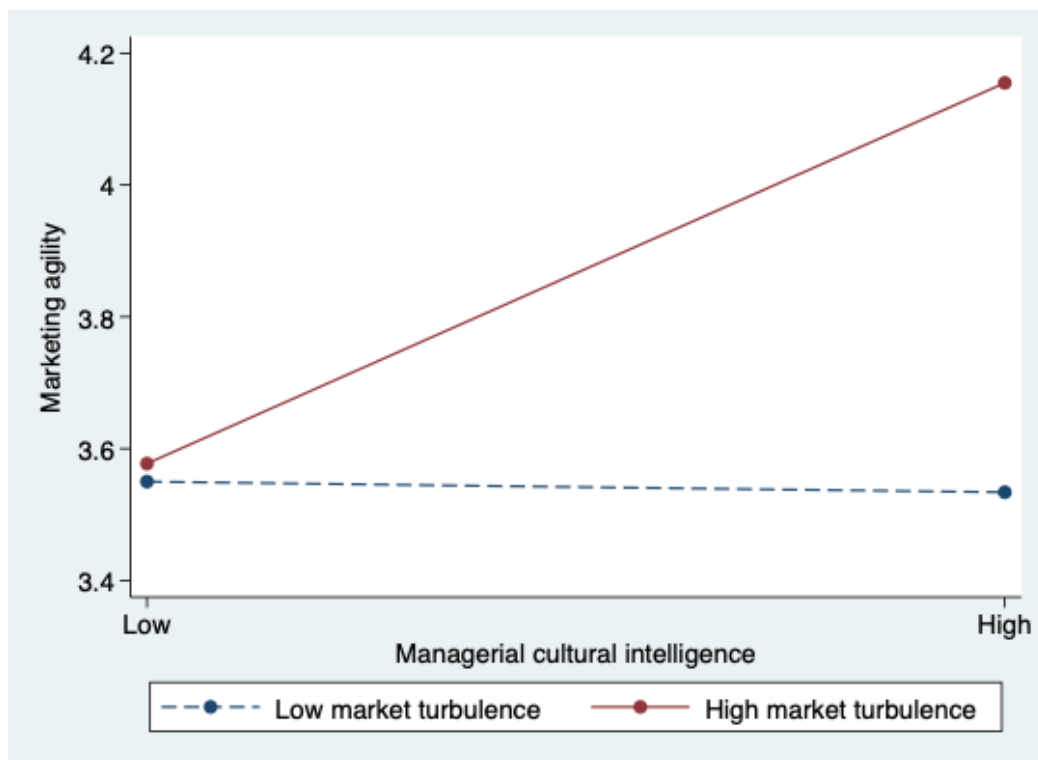


Figure 4 Moderating effect of market turbulence on the relationship between managerial cultural intelligence and marketing agility

Hypothesis 5 suggests that market complexity plays a positive moderating

role in the positive connection between managerial cultural intelligence and marketing agility. The coefficient of the interaction term between managerial cultural intelligence and market complexity is positive and significant at the 10% level in model 5 ($b=0.232$, $p<0.05$), giving evidence for hypothesis 3. When market complexity is high (M+1SD), managerial cultural intelligence is significantly and positively related to marketing agility (conditional effect= 0.340 , $p<0.05$). And the marketing agility of subsidiaries operated by top management teams with high cultural intelligence (M+1SD) compared to those with low cultural intelligence (M-1SD) increases by 11.4%. By contrast, when market complexity is low (M-1SD), managerial cultural intelligence is not significantly related to marketing agility (conditional effect= -0.016 , $p>0.1$). And the marketing agility of subsidiaries operated by top management teams with high cultural intelligence (M+1SD) compared to those with low cultural intelligence (M-1SD) even decreases by 0.6%. Therefore, the positive influence of managerial cultural intelligence on marketing agility is enhanced when market complexity is high. The moderating effect of market complexity on the relationship between managerial cultural intelligence and marketing agility in foreign subsidiaries is depicted in Figure 5.

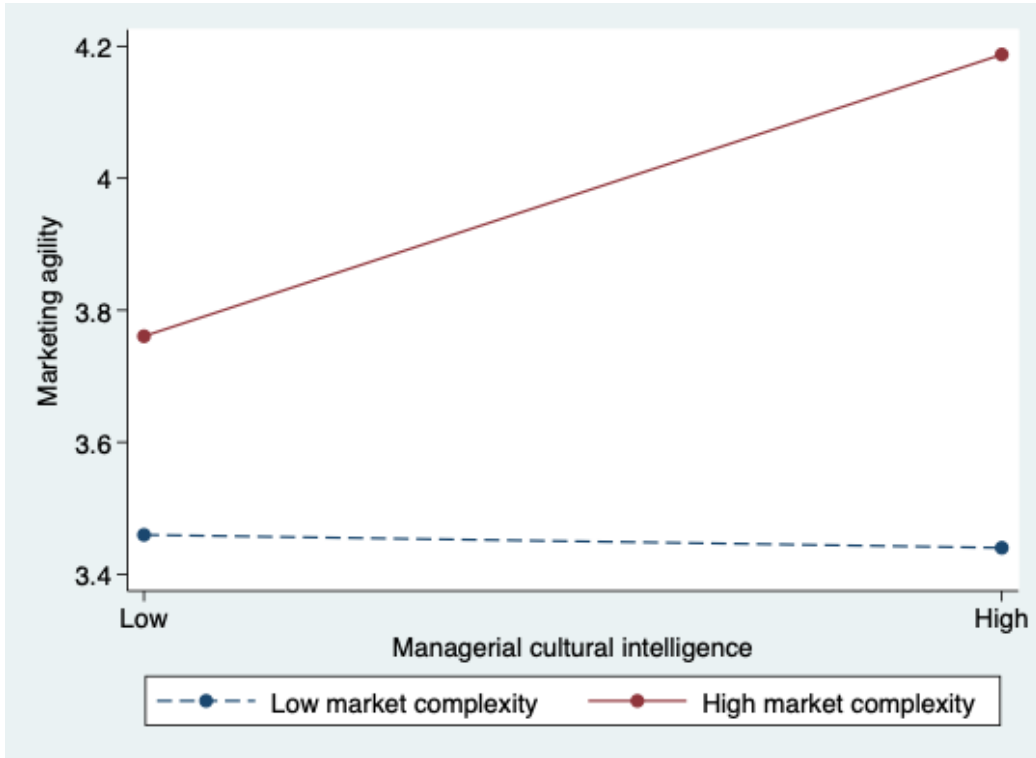


Figure 5 Moderating effect of market complexity on the relationship between managerial cultural intelligence and marketing agility

Moreover, the moderating effects of organizational learning climate, market competition, market turbulence, and market complexity on the indirect relationship between managerial cultural intelligence and innovation capability of foreign subsidiaries via marketing agility are examined by using PROCESS macro for SPSS (Hayes, 2013). The indexes of moderated mediation are displayed in Table 19.

Table 19 Index of moderated mediation

Moderator	Index	90% CI lower bound	90% CI upper bound
Organizational learning climate	0.117	0.017	0.221
Market competition	0.134	0.026	0.283
Market turbulence	0.186	0.007	0.361
Market complexity	0.131	0.010	0.273

As shown in the table, the indexes of moderated mediation are all positive, whose 90% Monte Carlo bootstrapped confidence interval (CI) exclude 0. Therefore, the moderated mediation is supported. The indirect relationship between managerial cultural intelligence and innovation capability of foreign subsidiaries via marketing agility will be enhanced when organizational learning climate, market competition, market turbulence, or market complexity is high.

To test hypothesis 5 and hypothesis 6, the regressions on innovation capability are conducted, and the results are presented in Table 20. In model 6, managerial cultural intelligence is included to predict innovation capability of foreign subsidiaries. In model 7, marketing agility is included. Managerial cultural intelligence and marketing agility are both included in model 8.

Table 20 Regression results on innovation capability

	Model 6	Model 7	Model 8
TMT nationality diversity	0.036 (0.076)	-0.025 (0.064)	-0.011 (0.064)
Subsidiary age	-0.060 (0.165)	-0.175 (0.140)	-0.166 (0.140)
Subsidiary size	0.017 (0.056)	-0.017 (0.048)	-0.019 (0.047)
Subsidiary performance	0.080 (0.075)	0.074 (0.059)	0.043 (0.063)
WFOE dummy	-0.041 (0.230)	0.033 (0.194)	0.020 (0.193)
Functional scope	0.016 (0.039)	0.034 (0.033)	0.038 (0.033)
HQ age	-0.186* (0.103)	-0.069 (0.088)	-0.067 (0.088)
Subsidiary autonomy	-0.015 (0.070)	-0.045 (0.059)	-0.050 (0.059)
Knowledge inflow	0.349***	0.237***	0.223***

	(0.092)	(0.079)	(0.080)
MCQ	0.289**		0.132
	(0.124)		(0.107)
Marketing agility		0.589***	0.564***
		(0.087)	(0.089)
Constant	2.304***	1.513**	1.134
	(0.813)	(0.639)	(0.707)
Industry effects	Yes	Yes	Yes
<i>N</i>	110	110	110
<i>R</i> ²	0.332	0.526	0.534

Note: MCQ refers to managerial cultural intelligence. Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Hypothesis 6 suggests that marketing agility is positively associated with innovation capability. In model 7, the coefficient of marketing agility is positive and significant at the 1% level ($b=0.598$, $p<0.01$) for predicting innovation capability. Therefore, hypothesis 6 is supported, marketing agility contributes to higher innovation capability.

Hypothesis 7 forecast a positive mediating effect of marketing agility on the relationship between managerial cultural intelligence and innovation capability. In model 6 of Table 20, managerial cultural intelligence is positively and significantly related to innovation capability ($b=0.289$, $p<0.05$). As discussed above, managerial cultural intelligence is significantly and positively associated with marketing agility in model 1 of Table 18, and marketing agility is significantly and positively connected with innovation capability in model 7 of Table 20. After including both managerial cultural intelligence and marketing agility for predicting innovation capability in model 8 of Table 20, marketing agility is still positively related to innovation capability at a significance level

of 1% ($b=0.564$, $p<0.01$), and the coefficient of managerial cultural intelligence decreases from 0.289 ($p<0.05$) to 0.132 ($p>0.1$) compared with model 6, and becomes not significant in model 8. Therefore, the mediating effect of marketing agility is supported.

In addition, The Sobel test and bootstrap method are adopted to verify the indirect effect of managerial cultural intelligence on innovation capability via marketing agility. The Sobel test indicates a significant indirect effect ($p < 0.05$), confirming the mediating effect of marketing agility. And the indirect effect is tested by using PROCESS macro for SPSS (Hayes, 2013). The results suggest that the indirect effect is 0.157 and 90% Monte Carlo bootstrapped confidence interval (CI) of the indirect effect is from 0.016 to 0.311, which does not include zero, providing additional support for hypothesis 7.

Chapter 6 Discussion and conclusion

6.1. Conclusion

With globalization, more and more firms are on the way towards internationalization and set up subsidiaries in different countries to gain more market shares and profits. The question of how subsidiaries in different countries develop marketing agility and improve innovation capability in the local markets becomes a key issue in theory and practice. This dissertation focus on the influence of managerial cultural intelligence in the face of fierce competition in the global market, aiming to explore the relationship among

managerial cultural intelligence, marketing agility, and innovation capability of foreign subsidiaries. Using a two-wave survey data of 110 foreign subsidiaries in China, this dissertation verified the theoretical model proposed. Specifically, the following conclusions are drawn in this dissertation:

First of all, managerial cultural intelligence helps to facilitate marketing agility. Managerial cultural intelligence enables top management teams in foreign subsidiaries better understand and predict trends of the local market where they operate, make and implement effective strategies responding to market changes, and thus promoting marketing agility.

Second, the relationship between managerial cultural intelligence and marketing agility is contingent on internal and external environments. From the aspect of internal environments, organizational learning climate amplifies the positive impact of managerial cultural intelligence, since such a learning climate supports the bottom-up process for organizational strategies of top management teams with high cultural intelligence to develop marketing agility. From the aspect of external environments, market contexts play essential moderating roles in the relationship between managerial cultural intelligence and marketing agility. Specifically, market competition enhances the positive influence of cultural intelligence and marketing agility given the important role of managerial cultural intelligence in obtaining competitive information to respond to market changes in highly competitive markets. Market turbulence has a positive moderating effect on the relationship between managerial cultural

intelligence and marketing agility because managerial discretion increases in turbulent markets and managerial cultural intelligence becomes more valuable for foreign subsidiaries to sense market changes and seize opportunities in such a context. And market complexity strengthens the positive effect of managerial cultural intelligence on marketing agility, because it enhances managerial discretion and increases the information-processing loads for top management teams. When market complexity is high, managerial cultural intelligence becomes more critical for top management teams to identify market opportunities and make effective strategies to improve marketing agility.

Third, marketing agility is positively associated with innovation capability because marketing agility enables foreign subsidiaries to be aware of new technologies earlier than competitors and sense demand changes. Foreign subsidiaries with high marketing agility can respond to market opportunities by choosing effective innovation strategies flexibly and introducing new products or services to seize opportunities in the local markets, and thus promoting the innovation capability of foreign subsidiaries.

Fourth, marketing agility plays a positive mediating role in the relationship between managerial cultural intelligence and innovation capability. Managerial cultural intelligence facilitates innovation capability via strengthening the marketing agility of foreign subsidiaries.

6.2. Theoretical implications

This dissertation contributes to existing research from the following

aspects.

First of all, this dissertation pays attention to marketing agility in foreign subsidiaries, a subject that lacks attention relatively (Gomes et al., 2020), deepening our knowledge of marketing agility. For foreign subsidiaries, they are faced with more complicated and volatile markets, with political, economic, sociocultural conditions different from the host countries, and marketing agility is critical but also more difficult for them. Although the notion of marketing agility has received more and more attention, the researches on marketing agility of foreign subsidiaries are quite limited. This study concentrates on the marketing agility in foreign subsidiaries, and tries to explore marketing agility's antecedents and its influence on innovation capability of foreign subsidiaries, enriching the related research of marketing agility in foreign subsidiaries.

Second, this study investigates the antecedent of marketing agility at the top management team level, responding to the calls for micro foundations of marketing agility (Christofi et al., 2021; Ferraris et al., 2021). Prior research has investigated various factors influencing the agility of firms, such as human resource management (Nijssen & Paauwe, 2012), lean production (Alves et al., 2012), organizational capabilities (Felipe et al., 2016), marketing analysis technologies (Ghasemaghaei et al., 2017), big data analytics (Hajli et al., 2020), IT application orchestration capability (Benzidia & Makaoui, 2020), and information processing capability (Li et al., 2021). However, these studies mainly focused on the influence of organizational factors, how individuals

contribute to the agility of foreign subsidiaries in international markets (Christofi et al., 2021; Ferraris et al., 2021), namely, the micro foundations of marketing agility still remains to explore. And little attention has been paid to the influence of top management teams' characteristics on marketing agility in foreign subsidiaries. Based on the upper echelons theory, this study argues that cultural intelligence of top management teams helps to facilitate marketing agility of foreign subsidiaries, extending the antecedents of marketing agility from the micro level of top management teams.

Third, this study explores the influence of managerial cultural intelligence of top management team on the firm-level outcomes, a subject that lacks exploration in prior research (Kadam et al., 2019), enriching the research on team-level cultural intelligence and upper echelons theory. Extant research has discussed a lot on the influence of cultural intelligence on individuals, such as their cultural adjustment (Lin et al., 2012), work performance (Malek & Budhwar, 2013), and knowledge sharing (Ali et al., 2019). Recent studies have started to pay attention to the impact of cultural intelligence at the executive level on leadership effectiveness (Kim & Van Dyne, 2012; Ng et al., 2009; Rockstuhl et al., 2011) and firm outcomes, such as the quality of firms' connection ties with foreign partners (Charoensukmongkol, 2015), export performance (Magnusson et al., 2013), supply chain performance (Tuan, 2016), international performance (Charoensukmongkol, 2016), and firm performance (Kadam et al., 2019). Despite efforts made by these studies, the influence of

cultural intelligence at the executive level on firm-level outcomes in foreign subsidiaries still needs further exploration (Kadam et al., 2019). This dissertation pays attention to the impact of cultural intelligence of top management teams on firm-level outcomes including marketing agility and innovation capability of foreign subsidiary, enriches the related research of the upper echelons theory and cultural intelligence.

Fourth, this dissertation investigates the moderating roles of the internal and external environment on the connection between managerial cultural intelligence and marketing agility and thus enriched the applied contexts of cultural intelligence in globalization. It is argued that the research on the upper echelons theory should not only focus on the influence of characteristics of decision makers, but also pay attention to the conditional contexts (Arena et al., 2018). Prior research pays little attention to the question of under what conditions micro foundations work on the agility of foreign subsidiaries (Ferraris et al., 2021). By discussing the moderating effects of organizational learning climate, market competition, market turbulence, and market complexity, this study deepens our understanding of the influence of managerial cultural intelligence on marketing agility under different contexts.

6.3. Practical implications

This dissertation provides rich implications for practice.

First of all, this dissertation states the importance of marketing agility in today's highly competitive, turbulent, and complex markets, and indicates its

positive influence on innovation capability of foreign subsidiaries. Given the essential role of marketing agility in distinguishing firms from competitors in the market, marketing agility becomes a key source of firms' competitive advantages, which enable firms to adjust their marketing strategies to seize opportunities and avoid threats (Gomes et al., 2020), improving innovation capability of foreign subsidiaries. Therefore, firms, especially foreign subsidiaries facing high foreignness in local markets, need to highlight the development of marketing agility.

Second, this dissertation demonstrates the positive influence of managerial cultural intelligence on marketing agility, which provides references for foreign subsidiaries to develop marketing agility. From the aspect of multinational firms, when selecting top management team members in foreign subsidiaries, cultural intelligence can be taken into consideration. Nowadays, personality evaluation has become one of the important parts of recruitment. Cultural intelligence is a measurable characteristic of individuals, which can be included in personality evaluation, as a reference for hiring senior managers in foreign subsidiaries to improve subsidiaries' marketing agility. Moreover, existing research has indicated the importance of experiential cultural intelligence education (Earley & Peterson, 2017; MacNab, 2012; Rosenblatt et al., 2013) and cross-cultural training (Fischer, 2011; Ramsey & Lorenz, 2015; Rehg et al., 2012) in enhancing individuals' cultural intelligence. Multinational firms can provide experiential cultural intelligence education and cross-cultural training for senior

managers in subsidiaries to improve their cultural intelligence in order to facilitate the marketing agility of subsidiaries. From the aspect of top management teams, senior managers need to take measures to improve cultural intelligence, and stimulate their potential in facilitating marketing agility and innovation capability. For instance, senior managers need to pay attention to cultural differences, hold a more open attitude towards other cultures, and strive to learn knowledge of other cultures to avoid misunderstandings in cross-culture interactions. When communicating with people from different cultures, top management teams need to adjust their verbal and nonverbal actions according to specific cultural contexts and well deal with conflicts caused by cultural differences. Cross-cultural training and education may be a good way for improving cultural intelligence, and top management team members need to participate in such activities actively. In the decision-making process, top management teams of foreign subsidiaries need to pay attention to cultural differences between the host and home country and make effective strategies accordingly in responding to local market changes. And top management teams need to build close connections with stakeholders from different cultures to gain market intelligence from different sources and promote the implementation of marketing strategies, facilitating marketing agility and innovation capability of the subsidiary in local markets.

Third, this dissertation has discussed the moderating effects of organizational learning climate, market competition, market turbulence, and

market complexity on the relationship between managerial cultural intelligence and marketing agility, providing references for foreign subsidiaries to develop marketing agility in different contexts. From the aspect of internal environments, this study indicates that organizational learning climate supports the bottom-up process for organizational strategies of top management teams with high cultural intelligence to develop marketing agility. Therefore, foreign subsidiaries need to include learning in their basic values take measures to encourage employees to engage in learning activities and build an organizational learning climate, and thus amplifying the positive influence of cultural intelligence on marketing agility. From the aspect of external environments, this dissertation suggests that market competition, turbulence, and complexity enhance the positive impact of managerial cultural intelligence and marketing agility. Therefore, in highly competitive, turbulent, or complex markets, the value of managerial cultural intelligence becomes more significant for subsidiaries to develop marketing agility, and foreign subsidiaries need to pay more attention to improving cultural intelligence of top management teams under such contexts, in order to keep marketing agility and competitive advantages.

6.4. Limitation and future studies

There are also some limitations in this dissertation that needs further exploration.

First of all, this study tests the theoretical model using survey data.

Although various measures were taken to minimize the potential risks of common method bias, the self-reported data may still lead to some concern about the results. And future studies can test the hypotheses proposed in this dissertation by using data from other sources or using more objective measurements.

Second, this dissertation examines the relationship among managerial cultural intelligence, marketing agility, and innovation capability using survey data of foreign subsidiaries in China. China is the largest emerging country and the second-largest economy in the world, the survey in China can provide references for other foreign subsidiaries operating in emerging countries. But we still want to know whether the conclusions of this study apply to foreign subsidiaries in developed economies? It may be an interesting topic for future studies. Future research can explore the relationships using data in other economies.

Third, the antecedents of marketing agility from the aspect of top management teams' characteristics deserve further exploration. Extant research on antecedents of marketing agility mainly concentrated on the influence of organizational factors, top management teams as key decision makers in firms, their characteristics influence the decision making process and thus influence the marketing agility. This study focuses on the influence of managerial cultural intelligence on marketing agility of foreign subsidiaries, and future studies can further explore how other characteristics of top management teams affect firms'

marketing agility, such as the educational diversity of top management teams, female senior managers in top management teams, and top management team conflicts.

Fourth, this study explores the influence of managerial cultural intelligence on firm-level outcomes including marketing agility and innovation capability of foreign subsidiaries. Given the importance of cultural intelligence of key decision-makers in foreign companies, existing research has explored the influence of cultural intelligence on individual behaviors such as leadership effectiveness, but its effects on firm-level outcomes still need exploration (Kadam et al., 2019). And future studies can further investigate the relationship between managerial cultural intelligence and firm-level outcomes such as business model innovation, digitalization, organizational resilience and performance of the strategic alliance.

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