Effect of Country Distance on E-commerce Export: Focusing on the Moderating Effect of Entrepreneurship

Yi Chen Wang
Lecturer, School of Business, Guangdong Polytechnic of Science & Technology, China

Tae Hee Lee[†]
Associate Professor, School of Economics and Commerce, Keimyung University, South Korea

Moon Gyu Bae
Doctoral Candidate, Department of International Business and Economics, Yeungnam University, South Korea

Keon Hee Lee
Professor, School of International Business and Economics, Yeungnam University, South Korea

Abstract

Purpose – This study examines the role of e-commerce resulting from technological innovation as a new approach toward internationalization. We study the relationship between e-commerce export and country distance, measured in CAGE distance, which has hindered traditional internationalization. As a control variable, entrepreneurship was introduced to check the moderating effect on the relationship between country distance and e-commerce export.

Design/methodology – Based on empirical analysis, e-commerce exports from the Republic of Korea to 96 countries were used as dependent variables. First, hierarchical regression analysis was conducted to test the hypothesis about each country's distance, measured by CAGE distance, and each dimension of CAGE, on e-commerce exports. Next, the hypothesis was tested through the interaction term to examine the moderating effect of entrepreneurship.

Findings – The analysis showed that the hypothesis, which postulated e-commerce exports as affected negatively by the country's distance, was supported but not that all CAGE dimensions affected it. Specifically, geographical distance and economic distance have negative effects, but cultural distance and administrative distance did not affect e-commerce exports. Thus, in contrast to the expectation that distance restrictions in e-commerce would not exist, this study confirmed that distance still matters to internationalization and that entrepreneurship can mitigate the adverse effects.

Originality/value – Through these results, when export firms try to enter new markets and start internationalization through e-commerce, the entrepreneurship of the importing country should be considered.

1. Introduction

Once upon a time, a black swan suddenly flew to a village lake. The villagers, who had only ever seen white swans, began to panic. They were shocked and worried by the abnormal phenomenon, which went beyond their understanding. Taleb (2007) introduced the "theory

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of black swan event" and described it as a metaphor for a rare historical or social event that causes chaos and has a massive impact on people. Therefore, strategic leaders need to consider how black swan events might affect planning (Rothaermel, 2019). From this perspective, the COVID-19 pandemic could be considered a black swan event that has shocked and appalled global "villagers."

COVID-19 has caused significant changes in our political, economic, and cultural systems. At this moment, the consequences and impact on human life are uncertain. However, some people feel that the pandemic may be a turning point in our civilization. Before the COVID-19 pandemic, "the globalization of markets" by isomorphism (Levitt, 1983) was debated globally, and people listened carefully to the argument that the world is flattening (Friedman, 2006). Because of the emergence of the black swan, many government authorities urged social distancing and suggested that firms re-shore because of a possible collapse of the global supply chain network. A taper integrate strategy (Rothaermel et al., 2006), emphasizing balancing vertical corporate integration and strategic outsourcing, is also gaining attention. In this context, we strongly argue the appropriateness of revisiting country distance, a topic that has lost relevance because of internationalization or globalization. Therefore, the authors revisit country distance measured in Cultural, Administrative, Geographic, and Economic (CAGE) distance (Ghemawat, 2001).

Various business environmental factors, such as economic, social, political, cultural, and psychological factors, differ globally. These differences create an engaging business environment for firms (Kotler et al., 2019). From a local country's perspective, a foreign firm, although unfamiliar with the target country's ways and mores, creates diverse and attractive business opportunities, and when it does this, local firms are in a better situation (Hymer, 1976). In addition, there are liability differences for foreign companies. For example, a foreign firm looking for new opportunities in a local country will not be familiar with the discriminative local environment, such as language, markets, information, and laws, and therefore, it incurs and pays more costs than a local firm does. In addition to competition from local firms, a foreign firm must consider the accelerating match against multinational rivals because of market globalization. This is the reason for which it should pay attention and spend time making strategic decisions on which overseas markets to enter (Craig and Douglas, 2011). The most critical decisions for firms considering entering an overseas market are regarding evaluation and selection (Aliouche and Schlentrich, 2011). Of several determinants, a country's distance is a vital variable for decisions regarding overseas markets.

A country's distance does not necessarily mean physical distance. According to the eclectic theory from Dunning (1980), from a multidimensional perspective, the distance between two countries includes geographical location and multidimensional concepts, such as culture, institution, politics, language, religion, and industrial difference. Because a country's distance is often regarded as foreign market uncertainty, some aspects might be understood as negative factors, for instance, a gradual internationalization (Johanson and Vahlne, 1977), a decrease in foreign direct investment (FDI) (Blomkvist and Drogendijk, 2013), and a fall in exports (Dow, 2000). However, studies on entrepreneurship recognized a country's distance as an opportunity (Oviatt and McDougall, 2005; Zahra, 2005; Zahra et al., 2005). Another important decision is choosing an entry mode, which involves great diversity, from simple export and licensing to FDI. Madhok (1996) argued that corporate capability affected the decision of entry mode based on evolutionary approaches (Nelson, 1985). The Uppsala model (Johanson and Vahlne, 1977) also suggested that the internationalization of a firm expands from a country with a closer psychological distance. Erramilli (1991) emphasized the importance of overseas market experience.

There are many current studies on the effect of country choice and entry mode on

internationalization. A technological innovation, among other things, significantly affects the business environment and internationalization from the perspectives of time and speed. Because of the explosive growth of recent e-commerce, Coviello et al. (2017) urged additional studies on digitalization related to internationalization. A significant departure from traditional trade is that e-commerce includes online purchasers and e-commerce suppliers. In addition, suppliers can diminish psychological distance by using customers' purchasing history and personal information to create relevant websites written in customers' local languages (Kim et al., 2017). Hence, the advances of e-commerce stimulated by technological advances provide some contrast to traditional country distance. From this context, we may agree that the world is flat (Friedman, 2006). From a theoretical perspective, a firm can diminish the negative impact from the country's distance by employing e-commerce, which may help a firm decide on an entry mode. Although it looks impressive and attractive, the theory inevitably has a gap with reality; the country's distance still matters and cannot be ignored. If we identify the export of e-commerce with a new type of entry mode, we need to seek other avenues of overseas expansion.

Because of pervasive e-commerce propelled by technological innovation, a country's distance and entry mode, considered essential to overseas market entry, show outcomes that differ from those of a traditional theory of overseas market entry. There have already been several quantitative pieces of e-commerce research, for instance, studies related to e-commerce on the environmental part of the target country, strategies on the rivalry among existing competitors (Wymer and Regan, 2005), cost reduction (Raymond et al., 2005), and the speed of internationalization (Shaheer and Li, 2020). However, to consider that previous studies overlooked the concepts of e-commerce and overseas entry mode simultaneously and merely covered factors that affected the adoption of e-commerce, the speed of internationalization, and firm performance is a hard pill to digest.

Thus, this study simultaneously considers the relationship between e-commerce backed by a technological advancement and a country's distance. The study presently seeks to answer the questions of whether a country's distance, which is one of the hindrances to traditional internationalization, plays a significant role in international e-commerce and whether entrepreneurship can be one ingredient to overcome the distance.

2. Literature Review and Hypothesis

2.1. E-commerce and Internationalization

When describing e-commerce internationality, terms like "transboundary," "cross-border," and "international" are often used. Hereinafter, we define e-commerce as "the trading of goods or services over computer networks, such as the internet, by methods specifically designed to receive or place orders" (OECD, 2011).

Meanwhile, traditional internationalization has been conceptualized as a firm's process toward gradually entering foreign countries by establishing overseas subsidiaries or export networks (Johanson and Vahlne, 1977). Johanson and Vahlne (2009) explained the network factors of the modified internationalization process. Vahlne and Johanson (2017) also compared a new concept of internationalization with previous theories and emphasized modern corporations' core aspects. In detail, they are characterized by adaptation toward industry change because of business exchange, active entrepreneurial activities, and a dispersed structure, rather than production, passive adaptation, and hierarchical structure. In terms of structure, Coviello et al. (2017) stated that digitization must be premised regarding

a firm's internationalization, along with established and recent structures.

In the early 21st century, people worried and referred to digitization as a dotcom bubble; however, it was established as a critical factor in internationalization. The Internet, especially, connects almost the entire global digital infrastructure. Hyperconnectivity (Quan-Haase and Wellman, 2004) is a widely accepted thought in the corridors of the 4th Industrial Revolution (Schwab, 2017). Enhancing speeds and reducing times for e-commerce allow firms to reach potential customers in geographically remote areas quickly; it is a novel tool for marketing and internationalization (Reuber and Fischer, 2011). A firm can enter a diverse overseas market via its website or another's online platform, thereby helping it overcome the time and space gaps between countries.

Internationalization through e-commerce may be default or active (Yamin and Sinkovics, 2006). In default internationalization, a firm's intention is not revealed through a simple website and store created in cyberspace. In active internationalization, a firm eagerly conducts activities related to creating its website and operations for business activities in foreign markets; even so, the website is created in cyberspace, which could be considered online internationalization. Lituchy and Rail (2000) suggest that when a firm creates a website, it starts internationalization regardless of whether it planned to do so. Through the website, a firm can provide various goods and services to customers in diverse markets, regardless of time and space (Gunasekaran et al., 2002), and it can communicate and interact efficiently with its customers (Ramanathan et al., 2012). Particularly for knowledge-based firms, becoming international through the Internet allows simple, convenient access to the world; there is no need to contact buyers physically (Arenius et al., 2005). Some specific attributes of e-commerce present contradictory elements of barriers on a traditional trade flow, and this phenomenon is usually referred to as the "death of distance" (Cairncross, 2002).

In their case studies of the internationalization of Hong Kong (China) firms, Child et al. (2002) indicated an average time gap of 4.5 years between entries into different markets. However, the consequence of near-simultaneous entry into several markets may reduce the extent to which knowledge acquisition regarding market entry is deliberately sought out (Yamin and Sinkovics, 2006). In this context, it is reasonable to compress the sequence of traditional internationalization through e-commerce, which allows simultaneous entry into multiple countries. In contrast, some adverse aspects of e-commerce in conjunction with internationalization exist. Such time-compression of internationalization may neglect key factors, such as institutions and cultures of the target country, and it can create so-called "time-compression diseconomies" (Jiang et al., 2014). In sum, there are favorable effects of e-commerce caused by the significant interaction between sellers and buyers. However, time-compression diseconomies, which are adverse effects of e-commerce, might possibly lower customer interaction with markets.

2.2. Country Distance

The liability of foreignness is mainly due to differences between countries; it costs more for a foreign firm to gain information about a destination country, including its economy, language, law, and politics (Hymer, 1976). In previous studies on internationalization, the distance between countries was used as a metaphor for differences (Shenkar, 2012). The expression of distance represents the collective differences between countries beyond geographic and physical differences (Zaheer et al., 2012). The concept of distance has been a focal area of study for scholars interested in explaining the variables in international management and marketing strategies (Prime et al., 2009).

Among other distance factors, cultural distance and psychological distance have been

widely used and commonly employed interchangeably. However, they differ in scope, scalability, and analysis level (national vs. individual) (Dow 2000; Prime et al., 2009; Sousa and Bradley 2006). To date, the factors have expanded to cover geographical concepts and multidimensional concepts, such as differences in culture, economy, institution, politics, language, religion, and industry. The CAGE distance has been widely used to study a country's distance (Beugelsdijk et al., 2020; Ghemawat, 2001, 2007; Miloloža, 2015; Shaheer and Li, 2020; Toaks and Deb, 2020), and each distance has different effects on cross-border transactions. The smaller the distance between countries the more potential there is in the market. The greater the distance between countries the more adverse the effects on cross-border trade (Ghemawat, 2001).

It is more challenging to interpret information on foreign markets as a foreign country can be far from the home country (Sousa and Bradley, 2006). In a quantitative study on cultural distance, Kogut and Singh (1988) suggested and utilized the Hofstede index (Hofstede, 1984) to measure the cultural distance between countries. Other studies have also used the index to gauge distance (Blomkvist and Drogendijk, 2013). Kim and Jensen (2014) argued that the higher the cultural distance between two countries the more foreign the firms from one country appear to audiences in the other country. This results in less firm trade between them. A qualitative study on the effect of cultural distance diminishes the foreign market's adverse perception and uncertainty of its size when a large Internet firm chooses a foreign market to enter (Rothaermel et al., 2006). On the study of FDI in China, Blomkvist and Drogendijk (2013) argued that the greater the cultural distance the more adverse the effects on China's FDI. They emphasized the importance of the cultural gap of the target country for the FDI to enter. Goods and services sold through e-commerce exports are facing cultural differences, and these differences can be barriers across borders. For example, Lawrence and Tar (2010) referred to social culture in developing countries as one factor behind e-commerce. Most cultures in developing countries do not support e-commerce and lack confidence in technology and the online culture, indicating non-mature conditions under which to foster e-commerce. One of the most significant cultural barriers is the level of trust in institutions. In his study, Yoon (2009) applied a consumer acceptance model of e-commerce developed in advanced countries to demonstrate that national culture could influence customer behavior. The cultural factor is also crucial in e-commerce; a supplier can take immediate action on a buyer's response on the basis of interaction between the two parties even though some mistakes can be made during e-commerce transactions.

Administrative distance refers to the institutional difference between two countries, including, but not limited to, bureaucracy and political structures. Ghemawat (2001) asserted that attributes creating distance are the absence of colonial ties, political hostility, government policies, institutional weakness, and lack of shared monetary or political association. Institutional differences create administrative obstacles toward other countries, with lopsided measures (i.e., tariffs, quarter, restricted investment, subsidy, and so on). Because firms usually avoid transactions with corrupted or politically conflicted countries, a country's institutional system is vital in international trade (Miloloža, 2015). There are more difficulties in transferring management systems from a home country to a host country when there is a more significant institutional gap between the two countries. Therefore, multinational enterprises (MNEs) secure legitimacy in the host country (Kostova and Zaheer, 1999). Government can play an essential role in creating an institutional environment that promotes private investment (Oxley and Yeong, 2001). Public relations and investment, particularly in small businesses, are the primary drivers of e-commerce (Thatcher et al., 2006). Government policies, such as trade and communication liberalization, are also likely to significantly impact e-commerce by making IT cheaper for companies and by ratcheting up pressure to adopt e-

commerce (Gibbs, 2003).

Geographic distance has a meaning of physical distance, which reduces both cooperation and conflict between countries. However, cooperation decreases more than conflict does, so that net conflict (conflict minus cooperation) rises as the geographic distance between two countries increases (Chang et al., 2004). In addition, the transportation cost and the depreciation cost of goods adversely influence international transactions when delivered to a geographically remote market (Clark et al., 2004). Many studies have proven that geographic distance negatively affects international trade (Frankel and Rose, 2002; Leamer, 1974). Davidson (1980), for example, observed that American MNEs entered culturally homogeneous and geographically closed markets, and Dow (2000) suggested that geographic distance had a negative relationship with the first market choice for an Australian exporting firm. In a gravitational model study, Kim et al. (2017) studied 721 regions in five European Union countries, showing that distance was not "dead" in e-commerce.

Ghemawat (2001) defined economic distance as the host country's economic development relative to that of the home country. The economic distance between countries mainly reflects discrepancies in wealth and economic size, often represented in factor costs, technological capability, infrastructure advancement, etc. Economic distance has been considered one of the critical factors significantly affecting FDI performance (Du et al., 2008; Tao et al., 2013). Economic distance is related to income, wealth distribution, and relative purchasing power. Consumer income has a substantial impact on trade, swings the possibility of achieving business cooperation (Miloloža, 2015), and constitutes a significant economic characteristic that can create differences between countries. Sizable economic distance also occurs if the host countries' economic status is lower than the home countries'. In this situation, the MNEs always develop further advantages through access to low-cost factors, including nature and labor (Tao et al., 2013).

Consider cross-national distance and digital innovation simultaneously; internationalization via digital innovation is still subject to CAGE distance. Digital innovations, developed in the context of home countries, may appear more foreign, less relevant, and even offensive to users as CAGE distances increase (Shaheer and Li, 2020). Because of the difficulties in delivering value to overseas users, derived from cultural distance and economic distance, the speed of internationalization might be delayed. Internationalization could be postponed because of administrative distance, such as limits of illegal copy associating technical patents.

As we have seen, distances are a matter of traditional international trade and international e-commerce trade. Although international trade can be digital, Ghemawat (2001) argues that the world will not be connected entirely without a complete solution for distance problems. We cannot object to his argument that the distances create issues between countries and make it challenging to internationalize a firm. In the international trade literature, geographic distance has been an indicator of trade resistance, mainly because of the associated transportation and communication costs (Beckerman, 1956; Leamer, 1974). However, over the past decade, transportation and communication costs have fallen dramatically (Hutzschenreuter et al., 2014). Absolute geographic distance increases communication costs because of uncertainty between firms, derived from physical attributes and transportation costs. A cross-border business incurs transportation and communication costs directly related to geographic distance (Hutzschenreuter et al., 2014). Leamer (2007) also insisted that the world is not flat physically, culturally, and economically; it never has been and never will be, especially concerning international trade. E-commerce might mislead people and ensnare them in a "virtuality trap" because of higher interaction levels between buyers and sellers, one of the typical attributes embedded in e-commerce (Yamin and Sinkovics, 2006).

In sum, while country distance, represented by CAGE, might be less crucial to international

e-commerce trade than traditional international trade is, it can still be detrimental to e-commerce exports. Moreover, it might also decelerate the global penetration of digital innovation by impeding users from adopting foreign innovations. Therefore, we hypothesize:

H1. Country distance is negatively associated with e-commerce export.

H1-1: Cultural distance is negatively associated with e-commerce export.

H1-2: Administrative distance is negatively associated with e-commerce export.

H1-3: Geographic distance is negatively associated with e-commerce export.

H1-4: Economic distance is negatively associated with e-commerce export.

2.3. Entrepreneurship

A firm needs to capture new opportunities beyond its capability to survive in a rapidly changing environment (Mintzberg, 1994). A firm that creates a new market quickly seizes opportunities and secures competitive advantages. One typical attribute is entrepreneurship, which is a crucial factor in corporate success in global competition. Entrepreneurship has been defined in many ways and involving many criteria, including the creation of a new venture (Low and Macmillan, 1988), interpretation of the reason and pattern of entrepreneurial behaviors (Stevenson and Jarillo, 1990), entry into new markets (Lumpkin and Dess, 1996), and the identification, evaluation, and exploitation of opportunities (Shane and Venkataraman, 2000). While there has been no agreed-upon definition of entrepreneurship, the concept of opportunity is a critical factor common to its characterization (Chandra et al., 2009; Eckhardt and Shane, 2003). In entrepreneurship, an opportunity is another way for an individual or firm to innovate, seek profits, and improve their state of affairs. Eckhardt and Shane (2003) stated that while non-entrepreneurial decisions maximize scarce resources across previously developed means and ends, entrepreneurial decisions involve creating or identifying new ends and means (Gaglio and Katz, 2001) previously undetected or unutilized by market participants. For instance, we do not regard entrepreneurial opportunities as firms receiving less cost from headquarters or overseas markets (Lumpkin and Dess, 1996). Even so, identifying entrepreneurial opportunities leads to the development of new products and brands or entry into the global market (Gartner, 1990).

Chandra et al. (2009) described opportunity recognition as a process consisting of discovery and deliberate, systematic search. They introduced two schools of thought. One believes that opportunities are identified through purposeful, rational, and systematic search processes (Drucker, 1998; Herron and Sapienza, 1992), similar to formal strategic planning. The other school believes that a search for opportunities may respond to a particular problem, such as when a firm faces declining sales, lost market share, decreased profit, or tough competition. They emphasize that opportunities are unknown until discovered and that one cannot deliberately search for something that one does not know exists (Kaish and Gilad, 1991). Opportunity discovery is not pure luck in that various conditions influence who can and cannot discover different opportunities or the kinds of opportunities that are potentially discoverable (Chandra et al., 2009).

In studying the correlations of entrepreneurial behavior in a sample of 52 prominent Canadian firms, the term entrepreneurial orientation (EO), defined by Miller (1983), includes manager attributes, such as innovation, proactiveness, and risk-taking. EO is referred to as "the processes, practices, and decision-making activities that lead to a new entry" (Lumpkin and Dess, 1996). Lumpkin and Dess (1996, 2001) and Knight (1997) identified five dimensions of EOs. Among those, Chandra et al. (2009) proposed that three dimensions, innova-

tiveness, autonomy, and proactiveness, drove opportunity recognition in international markets, which they referred to as follows:

Innovativeness is a firm's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes . . . Autonomy is the independence and freedom in bringing forth an idea or vision and carrying it through to completion . . . Proactiveness is a forward-looking perspective that accompanies innovative or new venturing activity and enables a firm to think and see new means-ends frameworks ahead of others . . . The other two dimensions of EO affect the willingness and ability of people and firms to exploit (rather than recognize) new opportunities. Risk-taking is the proclivity to engage in risky business activity and the preference for bold vs. cautious acts to achieve a firm's objectives. It is a prerequisite for entry into unfamiliar foreign markets with untried and untested new approaches, where resources are at risk and expected returns are uncertain. Competitive aggressiveness is the firm's propensity to directly and intensely challenge its competitors to achieve entry, to improve its market position, or to outperform rivals in the marketplace. It drives the firm to enter new foreign markets. (Chandra et al., 2009)

EO is interested in technology, creating new products, procedures, and services, and e-commerce is a generally acknowledged competitive tool (Mehta and Shah, 2001). Li et al. (2008) argue that small firms should enhance innovativeness and proactiveness, avoid taking excessive risks, and maintain proper market positioning based on the moderating effect of EO on the relationship between market orientation and firm performance. A manager with EO also tends to seek opportunities and technology to maintain market competitiveness; therefore, such managers have higher probabilities of leveraging the benefits of e-commerce technology.

A future-oriented perspective explains opportunity recognition as eagerly seeking new products, services, and opportunities (Kropp et al., 2005); proactively exploring the attractive niche market; and promoting new entry modes into the market (Lumpkin and Dess, 2001). Such a definition might include the capability of a firm to enter an exporting market. Innovativeness raises creativity, which leads to the independent production of products and services through research and development (Lumpkin and Dess, 2001). Because they tend to think outside the box and have nontraditional creative views, entrepreneurs can recognize opportunities and adapt to uncertain environments (Timmons et al., 2004). A risk-taking propensity is associated with the will of an entrepreneur to commit large-scale resources and bear the risk associated with finding opportunities (Miller and Friesen, 1978). An entrepreneur with a higher risk-taking propensity tends to adapt better to local environments by reestablishing opportunity and organizational capability, which influence the performance of the exporting firm (Zahra et al., 1999). In a study on the relationship between entrepreneurship and internationalization, with a sample of 500 small and medium English corporations, Balabanis and Katsikea (2003) argued that entrepreneurship positively connected with overseas entry performance. In another study, with a sample of family-owned firms, based on the link among innovativeness, creativity, and entrepreneurship, Carvalho and Williams (2014) identified entrepreneurship as a virtue of the firms entering the global market.

In sum, entrepreneurship has a positive impact on internationalization, and it overcomes and leverages adverse environments. Therefore, we hypothesize the following:

H2. Entrepreneurship is positively associated with e-commerce export.

H3: Entrepreneurship will moderate the relationship between the country's distance and e-commerce export.

H3-1: Entrepreneurship will moderate the cultural distance and e-commerce export.

H3-2: Entrepreneurship will moderate the relationship between the administrative distance and e-commerce export.

H3-3: Entrepreneurship will moderate the relationship between geographic distance and e-commerce export.

H3-4: Entrepreneurship will moderate the relationship between the economic distance and e-commerce export.

3. Methodology

3.1. Data and Model

Our primary statistical test employed 9 years of country-level data from the e-Commerce Export and Import Database developed by the Korea Trade Statistics Promotion Institute. The dataset consisted of countries that the Republic of Korea (Korea) has exported to via e-commerce. However, some countries were excluded from the final dataset of 96 countries; the excluded countries were not listed on the Global Entrepreneurship Index (GEI) from the Global Entrepreneurship and Development Institute (2018) or the Logistics Performance Index (LPI) of the World Bank (2020).

We observed the dataset to study the distance between Korea and the 96 selected importing countries. In terms of geographical region, the observed countries included 12 from East Asia and Pacific, three from Eurasia, 33 from Europe and North America, 16 from Latin America and the Caribbean, 15 from the Middle East and North Africa, four from South Asia, and 13 countries from Sub-Saharan Africa.

Based on Blomkvist and Drogendijk (2013), we integrated the concept of country distance and established a research model to identify the effect of distance on e-commerce exports. We used hierarchical regression analysis to test the moderating effect of entrepreneurship on the causal relationship between country distance (independent variable) and e-commerce performance (dependent variable). In particular, we created and analyzed interaction terms to check the moderating effects of distance between countries on e-commerce exports. Furthermore, to avoid multicollinearity problems, a mean-centered treatment was performed for the moderating variables entrepreneurship and country distance.

3.2. Operationalization of Variables

3.2.1. Dependent Variable

For our dependent variable, we used the volume of Korean e-commerce exports to 96 countries from 2010 to 2018. The e-commerce export data were obtained from the Korea Export Statistics Promotion Institute (2020) database. The selection criterion for the sample countries was the export amounts declared to the Korea Customs Service. We set up the data period from 2010 to 2018 to eliminate the effects of the global financial crisis in 2008 and account for the rapid diffusion of smartphones and large-scale e-commerce platforms from 2010. The Covid-19 pandemic, which broke out in December 2019, has had a significant impact on e-commerce exports. However, we wanted to focus this study on seeing the effectiveness of distance when external shocks are controlled because the external impact effects may be biased between countries. In addition, the considerable temporary rise in e-

commerce exports following the impact is likely to distort the effectiveness of distance. Therefore, changes in performance should be seen at a certain point in time after the impact period. The e-commerce export amount was averaged country by country from 2010 to 2018; the amount is denoted in US dollars; and we took a natural logarithm of the dollar amount.

3.2.2. Independent Variables

3.2.2.1. Country Distance.

We operationalized country distance in line with Ghemawat's (2007) CAGE distance, calculated by Kogut and Singh (1988), and the four dimensions of CAGE distance: economic, geographical, cultural, and administrative distances.

$$CAGE_{D_\zeta} = \sum_{i=1}^{4}((I_{ij} - I_{ik})/V_i)/4 \tag{1}$$

where:
$CAGE_{D_\zeta}$: the country distance measured by CAGE distance between exporting country (herein, Korea) and importing country.
I_{ij}: the exporting country j's (herein, Korea) score for CAGE dimensions i.
I_{ik}: the importing country k's score for the corresponding CAGE dimensions i.
V_i: the variance of the CAGE component i.

3.2.2.2. Cultural Distance.

We operationalized cultural distance (CD) with Hofstede's (1984) cultural index. Then, based on Kogut and Singh's (1988) formula, we combined four cultural dimensions, individualism, uncertainty avoidance, power distance, and masculinity, into the following composite index:

$$CD_k = \sum_{i=1}^{4}((I_{ij} - I_{ik})/V_i)/4 \tag{2}$$

where:
CD_k: the cultural distance measured by Hofstede's (1980) cultural index between exporting country (herein, Korea) and importing country.
I_{ij}: the exporting country j's (herein, Korea) score for Hofstede's cultural dimension i.
I_{ik}: the importing country k's score for the corresponding cultural dimension i.
V_i: the variance of the index score of cultural dimension I.

This paper extended from East Africa, West Africa, and the Arab area into more countries, similar to what Blomkvist and Drogendijk (2013) did. For example, we gave Uzbekistan, Ukraine, and Kazakhstan the same score as Russia. However, we removed Uzbekistan from the dataset as it was missing years in the GEI from 2008 to 2010.

3.2.2.3. Administrative Distance.

We operationalized administrative distance by adopting a measure of World Governance Indicators (WGI). The benefits of this data source are its accessibility and expanded dataset (it includes more than 200 countries), making it one of the most comprehensive databases for studying institutional features in a wide range of studies (e.g., Håkanson & Ambos, 2010; Hutzschenreuter et al., 2014). The WGI provide a country score from −2.5 (weak governance) to 2.5 (strong governance) for all indicators. The dataset comprises six dimensions of governance: voice and accountability (measuring political, civil, and human rights); political stability and lack of violence (measuring the likelihood of violent threats to, or changes in,

government, including terrorism); government effectiveness (measuring the competence of the bureaucracy and the quality of public service delivery); regulatory quality (measuring the incidence of market-unfriendly policies); the rule of law (measuring the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence); corruption control (measuring the exercise of public power for private gain, including both petty and grand corruption and state capture). The same formula used to calculate cultural distance was applied to measure administrative distance. We then averaged the yearly index over the sampling period and used it in the statistical analysis.

$$AD_k = \sum_{i=1}^{6}((I_{ij} - I_{ik})/V_i)/6 \tag{3}$$

where:
    AD_k: the administrative distance measured by WGI between exporting country (herein, Korea) and importing country.
    I_{ij}: the exporting country j's (herein, Korea) score for WGI i.
    I_{ik}: the importing country k's score for the corresponding WGI i.
    V_i: the variance of the administrative score for WGI i.

3.2.2.4. Geographic Distance.

Along with the previous studies (Buckley et al., 2007; Ojala and Tryvainen, 2007; Malhotra et al., 2009), we calculated geographic distance by the actual distance between the capital city of exporting country j (herein, Korea) and the capital city of importing country i. The distance in kilometers was obtained from the CEPII (The Centre d'Etudes Prospectives et d'Informations Internationales) database (2007), and geographical distance was converted to a natural logarithm to avoid significant variance.

3.2.2.5. Economic Distance.

Economic distance refers to differences that affect cross-border economic activity through economic mechanisms distinct from the cultural, administrative, or geographic ones already considered (Ghemawat, 2007). Herein, economic distance means the economic development gap between the exporting country and importing country. The effects of economic distance, viewed in isolation, are more ambiguous than those of other forms of distance are, making it harder to test for distinct effects (Hutzschenreuter et al., 2016). The measurement for the difference in economic development has been developed in a multitude of different ways. For example, Berry et al. (2010) developed the measure based on various factors, such as GDP per capita, inflation, and export and import amount, with Mahalanobis Distance. Håkanson and Ambos (2010) measured the economic distance with GDP per capita in US dollars. However, individual income levels are regarded as the most crucial economic attribute creating distance between countries (Ghemawat, 2001). In this paper, we measured economic distance by averaging the gap of GDP per capita (in US dollars in 2000) between the exporting country (herein, Korea) and importing country from 2010 to 2018. To this end, we employed the World Development Indicators (WDI) from the Database of the World Bank (2020).

$$ED_k = \log(1 + |S_i^2 - S_j^2|) \tag{4}$$

where:
    ED_k: the economic distance measured by WDI between exporting country (herein, Korea) and importing country.
    S_i: GDP per capita of exporting country.
    S_j: GDP per capita of importing country.

3.2.3. Moderating Variable

In this study, we used the GEI as a measure for entrepreneurship. GEI refers to entrepreneurship as part of a "national system of entrepreneurship," and thus, entrepreneurship arises in response to embedded institutional interactions between an individual's entrepreneurial attitudes, abilities, and aspirations, facilitating resource allocation through the creation and operation of new ventures (Ács et al., 2014). GEI is the first complex index to address the multidimensional aspects of entrepreneurship quality. It is based on 14 pillars, comprising three sub-indexes, and each pillar includes one individual and one institutional variable. The means of the 14 pillars are equalized to balance the marginal effects of improvements.

Based on the research from Ács et al. (2017), because entrepreneurship depends on recognizing and exploring new business opportunities, the Entrepreneurial Attitude (ATT) Sub-Index measures the potential for business opportunity perception. In addition, institutional factors, such as the size of the market, the level of a population's post-secondary education, the country's business climate, use of the Internet, and cultural attitudes, also affect entrepreneurship development. The constituent factors are opportunity perception, start-up skills, risk acceptance, networking, and cultural support. By contrast, the Entrepreneurial Abilities Sub-Index (ABT) focuses on measuring high-growth-potential start-up activities. Again, the constituent factors are opportunity perception, start-up skills, risk acceptance, networking, and cultural support. Finally, the Entrepreneurial Aspiration (ASP) sub-index comprises the most relevant variables that measure the individual and institutional aspects of market expansion and innovative entrepreneurial development. The constituent factors are product innovation, process innovation, high growth, internationalization, and risk capital. We took the average annual index of importing country j over the sampling period to measure entrepreneurship as a moderating variable.

3.2.4. Control Variables

In line with previous studies (Gibbs et al., 2003; Berry et al., 2010), we controlled five variables to affect e-commerce performance: global production network (L_OFDI); open trade regimes (FTA); mobile phone penetration (L_Mobile); the efficiency of logistics (LPI); and global connectedness distance (GCD) (Oxley and Yeung, 2001; Berry et al., 2010). This shows the ability of resident individuals and firms to interact with other parts of the world, obtain information, and diffuse their activities. Furthermore, following the literature in this area (Berry et al., 2010), we used international tourism expenditures and employed the dimensions as a percentage of GDP, international tourism receipts as a percentage of GDP, and Internet users as a percentage of population. All of the aforementioned data were secured from the WDI Database of World Bank (2020), and Kogut and Singh's (1988) formula for the distance was used herein.

$$GCD_k = \sum_{i=1}^{3}((I_{ij} - I_{ik})/V_i)/3 \tag{5}$$

where:

GCD_k: The global connectedness distance between the exporting country (herein, Korea) and importing country.
I_{ij}: The exporting country j's (herein, Korea) score for GCD i.
I_{ik}: The importing country k's score for GCD i.
V_i: The variance of the score for GCD i.

Table 1. Description of Variables

Dimension	Variable	Component of variable	Years available	Source
E-commerce	E-com	E-commerce export amounts of Korea (USD, log)	2010–2018	ktspi.or.kr
Country Distance	CAGE	CD, AD, GD, ED	2010–018	Blomkvist and Drogendijk (2013)
Cultural Distance	CD	Power distance, uncertainty avoidance, individualism, masculinity	2010–2018	Hofstede Index
Administrative Distance	AD	Voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, control of corruption	2010–2018	WGI
Geographic Distance	GD	Distance between the capital of Korea and the capital of the e-commerce export destination	2010–2018	CEPII
Economic Distance	ED	GDP per capita (USD, log)	2010–2018	WDI
Entrepreneurship	GEI	Attitudes Abilities Aspiration	2010–2018	GEDI
Global Production Network	L_OFDI	Outward foreign direct investment (USD, log)	2010–2018	koreaexim.go.kr
Efficiency of Logistics	LPI	Customs, infrastructure, quality, shipment, tracking and tracing, timeliness	2007–2018	WDI
Open Trade Regimes	FTA	FTA status	2010–2018	fta.go.kr
Global Connectedness Distance	GCD	International tourism expenditure, international tourism receipts, internet users	2010–2018	WDI
Mobile Penetration	L_Mobile	Mobile cellular subscriptions	2010–2018	WDI

We measured the number of mobile phone subscribers from the World Bank's WDI to determine mobile phone penetration (L_Mobile), averaged the numbers from 2010 to 2018, and used a logarithm.

An LPI was employed to measure logistics efficiency. We averaged the index, collected six times from 2007 to 2018. A five-point Likert scale was used to survey LPI, comprising customs, infrastructure, international shipment, logistics quality and competence, tracking and tracing, and timeliness. Martí et al. (2014) used LPI as a factor to analyze its impact on

the international trade of emerging economies. In line with this study, we used LPI to measure the logistics efficiency of e-commerce exports.

In the global production network, Gibbs et al. (2003) presented theoretical evidence and cases to suggest that global production networks (L_OFDI) and open trade regimes promote e-commerce activities. We operationalized L_OFDI as the size of outward foreign direct investment (OFDI). We obtained and used a logarithm on the average OFDI provided by Korea Exim Bank Statistics for the period 2010–2018.

We measured the open trade regimes of free trade agreements (FTAs) between Korean and importing countries, obtained from the Korean Ministry of Trade, Industry, and Energy (2020), which we used as dummy variables.

4. Result

4.1. Descriptive Statistics and Correlation Matrix

Table 2 and Table 3 present the descriptive statistics, and Table 4 shows the correlation matrix. Europe and North America were the most extensive regions for Korea's e-commerce exports in 2010, and East Asia and Pacific replaced the Western nations for top position in 2013. In terms of CAGE distance, the countries closest to Korea are, in descending order, China, Japan, and Slovenia. Other distances, such as CAGE distance, are illustrated in Table 3.

The diagnostic information from the regression analysis (Table 5) supports the correlation result. We used variance inflation factors (VIF) and determining factors to confirm that multicollinearity problems were unlikely. The highest VIF was 3.09, well below 10 (Hair et al., 2006).

Table 2. The Republic of Korea's E-commerce Exports (Units: US Dollars)

Export Zone	2010	2011	2012	2013	2014	2015	2016	2017	2018
East Asia and Pacific	180,424 (8.77%)	1,307,245 (30.63%)	3,940,759 (38.11%)	11,170,443 (47.95%)	16,795,515 (46.39%)	78,625,070 (78.91%)	102,195,756 (78.81%)	81,038,963 (80.09%)	113,557,528 (86.04%)
Eurasia	35,385 (1.72%)	382,747 (8.97%)	1,474,391 (14.22%)	1,762,726 (7.57%)	2,870,139 (7.93%)	1,227,015 (7.93%)	1,017,074 (0.79%)	728,820 (0.72%)	1,987,170 (1.51%)
Europe and North America	1,788,111 (86.89%)	2,176,541 (50.99%)	4,472,569 (43.14%)	9,299,820 (39.92%)	15,077,780 (41.64%)	18,189,242 (18.26%)	23,506,247 (18.36%)	18,433,594 (18.22%)	15,082,280 (11.43%)
Latin America and the Caribbean	37,232 (1.81%)	248,519 (5.82%)	253,226 (2.44%)	567,503 (2.44%)	509,956 (1.41%)	461,945 (0.46%)	457,558 (0.36%)	424,064 (0.42%)	668,422 (0.51%)
Middle East and North Africa	11,689 (0.57%)	133,362 (3.12%)	177,202 (1.71%)	430,168 (1.85%)	815,104 (2.25%)	962,247 (0.97%)	642,257 (0.50%)	480,703 (0.48%)	565,866 (0.43%)
South Asia	3,604 (0.18%)	13,348 (0.31%)	25,347 (0.24%)	45,002 (0.19%)	98,871 (0.27%)	149,551 (0.15%)	143,661 (0.11%)	66,250 (0.07%)	105,249 (0.08%)
Sub-Saharan Africa	1,485 (0.07%)	6,460 (0.15%)	24,764 (0.24%)	20,691 (0.09%)	39,224 (0.11%)	20,130 (0.02%)	80,457 (0.06%)	16,472 (0.02%)	18,352 (0.01%)

Table 3. CAGE Distance to the Republic of Korea, per factor

Top Five Countries	CD	AD	GD	ED	CAGE
Countries nearest to Republic of Korea	Peru	Latvia	Mainland China	Slovenia	Mainland China
	El Salvador	Spain	Japan	Greece	Japan
	Chile	Lithuania	Hong Kong(China)	Portugal	Slovenia
	Egypt	Poland	Philippines	Bahrain	Hong Kong(China)
	Bulgaria	Croatia	Vietnam	Puerto Rico	Greece
Countries farthest from Republic of Korea	Denmark	Libyan Arab Jamahiriya	Uruguay	Luxembourg	Luxembourg
	Slovakia	Venezuela	Argentina	Norway	Argentina
	U.K	Iraq	Chile	Switzerland	Ecuador
	Sweden	Myanmar	Brazil	Qatar	Peru
	U.S.A	Nigeria	Peru	Denmark	Sierra Leone

4.2. Test of Hypothesis

We ran hierarchical regression analyses to test the hypotheses, wherein there were four different regression models. As F-statistics show, each of the four models was a statistically significant predictor, at $p < .001$. In Model 1, e-commerce export of Korea was regressed on the study's control variables. In Model 2, two CAGE distance (CAGE) variables and entre-preneurship (GEI) were added to Model 1's control variables. In Model 3, interaction terms were added to the variables already present in Model 2. The interaction terms were created by multiplying GEI (the "entrepreneurship" measure) by CAGE distance (CAGE). We also checked for improvements made in the explanatory powers between successive steps by applying the procedure suggested by Cohen and Cohen (1975).

Table 5 presents the results of moderated regression analysis for e-commerce export. Model 1 regressed e-commerce export on the control variables and was significant ($p < .001$), explaining 58%. The global production network ($p < .001$) and efficiency of logistics ($p < .001$) both had positive and significant coefficients. Model 2, which included the control, entrepreneurship, and CAGE distance variables, was also significant ($p < .001$) and explained 65% of e-commerce export variance. The entrepreneurship measure was not statistically significant; however, CAGE distance was negatively associated with e-commerce export ($p < .001$). The third step of the analysis (Table 5) tested moderated regression models. In the regression, we added the interaction term for CAGE distance to variables in Model 2. The analysis was significant ($p < .001$), explaining 66.5% of the e-commerce export variance. The interaction term was also significant and positive ($p < .05$). The entrepreneurship interaction term's addition improved the overall R^2 of the model by 1.5% ($p < .001$).

In Model 4, we added four CAGE dimensions, but we removed CAGE distance from the variables in Model 3. We ran the analysis using interaction terms for cultural distance, administrative distance, geographic distance, and economic distance variables. The model was significant, explaining 67% of e-commerce export variance. The interaction term was positive and significant only to cultural distance ($p < .10$) and administrative distance ($p < .10$); however, it added 1% to the explanatory power of Model 3. This improvement was also significant ($p < .001$).

Table 4. Correlation Matrix

Type	Name of Variable	Mean	STD	1	2	3	4	5	6	7	8	9	10	11
CV	L_OFDI	9.99	2.93	1										
	LPI	3.11	0.54	0.39***	1									
	FTA	0.45	0.50	0.35***	0.44***	1								
	GCD	1.50	1.64	–0.19*	–0.27***	–0.31***	1							
	L_Moblie	4.69	0.34	0.20**	0.39***	0.15	–0.32	1						
IV	CD	1.52	1.28	0.31***	0.47***	0.30***	–.023**	0.11	1					
	AD	1.43	1.31	–0.18*	–.045***	–0.27***	0.23**	–0.33***	–0.26**	1				
	GD	9.01	0.53	–0.36***	–0.20**	–0.19*	–0.14	–0.07	–0.19*	–.6	1			
	ED	9.64	0.80	0.23**	–0.01	–0.04	0.11	–0.22**	0.24**	0.21**	–0.08	1		
MV	GEI	38.44	18.65	0.36***	0.53***	0.41***	–0.37***	0.20	0.47***	–0.44***	–0.39***	0.04	1	
DV	e–Com	9.54	2.80	0.60***	0.65***	0.46***	–0.35***	0.40***	0.42***	–0.39***	–0.46***	–0.03	0.47***	1

Note: 1. CV = Control Variable, IV = Independent Variable, MV = Moderating Variable, DV = Dependent Variable
2. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

In summary, the results partially support Hypothesis 1 because CAGE distance is associated with e-commerce export. Even so, each CAGE dimension, such as cultural, administrative, geographic, and economic distance, showed mixed results. Therefore, Hypotheses 1-1 and 1-2 were rejected, but Hypotheses 1-3 and 1-4 were supported. Hypothesis 2 was supported, and Hypothesis 3, which tested the interaction variables, was partially supported. This was also the case with Hypothesis 1; Hypotheses 3-1 and 3-2 were supported, but Hypotheses 3-3 and 3-4 were rejected.

Table 5. Moderated regression results for e-commerce exports of Korea

Variables	Model_1	VIF	Model_2	VIF	Model_3	VIF	Model_4	VIF
L_OFDI	0.354 *** (5.01)	1.25	0.315*** (4.8)	1.32	0.285*** (4.32)	1.36	0.234** (3.24)	1.66
L_MOBILE	1.021 (1.66)	1.27	0.553 (0.97)	1.32	0.414 (0.73)	1.77	0.495 (0.81)	1.59
GCD	−0.177 (−1.41)	1.21	−0.244* (−2.05)	1.29	−0.296* (−2.48)	1.39	−0.299* (−2.46)	1.46
LPI	1.926 *** (4.51)	1.53	1.639*** (3.9)	1.78	1.706*** (4.12)	1.79	1.536*** (3.5)	2.06
FTA	0.661 (1.52)	1.37	0.311 (0.77)	1.44	0.162 (0.4)	1.49	0.28 (0.68)	1.56
GEI			0.0167 (1.42)	1.67	0.00948 (0.79)	1.83	0.00573 (0.43)	2.31
CAGE			−0.0858*** (−4.49)	1.17	−0.0865*** (−4.61)	1.17		
CAGE*GEI					0.00242* (2.06)	1.35		
CD							0.0883 (0.52)	1.78
AD							0.0383 (0.17)	3.09
GD							−1.743 *** (−4.55)	1.5
ED							−0.472 † (−1.77)	1.7
CD*GEI							0.0148 † (1.82)	1.94
AD*GEI							0.0218 † (1.78)	2.51
GD*GEI							0.0174 (0.74)	1.29
ED*GEI							0.013 (0.76)	1.96
F−Value	27.34***		26.46***		25.54***		14.84***	
N	96		96		96		96	
Adj R2	0.58		0.65		0.66		0.67	

Notes. 1. t−values in parentheses

2. †$p < .10$, * $p < .05$, **, $p < .01$, *** $p < .001$

5. Conclusion and Implication

The decision on which foreign market to enter is critical for corporate strategy and successful internationalization. Therefore, this study reflected the country distance based on the CAGE framework of e-commerce derived from technological innovation. With regard to this, we addressed the influence of "distance matter," which is considered a barrier for traditional internationalization and international e-commerce. In addition, we addressed the possibility that "distance matter" could be overcome via entrepreneurship in the context of newly rising e-commerce. Ghemawat (2007) suggested that distance provides a good set of metrics for capturing degrees of difference and similarity between countries, including consideration for the dimensions of the CAGE framework. Johanson and Vahlne (1977) argued that the Uppsala model defined psychic distance as the sum of factors preventing the flow of information; markets and firms would gradually enter other markets that were further away in psychic terms. Our study confirmed that "distance still matters" (Ghemawat, 2001) in the internationalization process.

Among control variables, global production networks and logistics efficiency have positive associations with e-commerce. This result supports the argument that participation in global production networks is an essential driver of e-commerce diffusion. Furthermore, global production networks rely heavily on IT and e-consumers for coordination, and MNCs transfer technology and knowledge to local firms on conducting e-commerce (Gibbs et al., 2003). Moreover, we identify that the efficiency of logistics, denoted by characteristic features such as on-time delivery, tracking, and various logistic infrastructure, is as crucial to e-commerce export as it is to traditional international trade. Last, in Model 4, the distance of global connectedness control variable enables individuals and firms to interact with others, share information, and expand activities further.

In Model 3, CAGE distance is negatively associated with Korea's e-commerce exports as expected in Hypothesis 1, and some CAGE dimensions are not associated with e-commerce exports. Geographic distance and economic distance, while marginal, are negatively associated with e-commerce exports. Clark et al. (2004) argued that transportation costs are a higher barrier in the American market than import tariffs are in Latin American countries. One critical factor affecting transportation cost is the geographic distance separating an importer and an exporter (Leamer, 1974). With all these considerations, exported e-commerce goods must be delivered to the final importer in the final analysis as is the case with traditional exports. Therefore, we identified that geographic distance is still negatively associated with e-commerce exports. Economic distance is also negatively associated with e-commerce exports in what is consistent with Linder's theory of representative demand (1961). From country similarity, the economic proximity between two countries leads to similarity of income and wealth for both countries, which results in similar consumer preferences.

Cultural distance and administrative distance are not associated with e-commerce export, contrary to what previous studies say. Entering firms favor overseas markets with similar cultures (Blomkvist and Drogendijk, 2013; Johanson and Vahlne, 1977; Kogut and Singh, 1988). The result is not consistent with that obtained by Håkanson and Ambos (2010). They pointed out the prevailing suggestion in the existing literature that the more significant the differences in foreign environments the more difficulties for firms to collect, analyze, and correctly interpret information about the country, leading to higher uncertainties and challenges in doing business. We suggest that cultural distance and administrative distance do not influence e-commerce exports as sharing information with other countries becomes easier through the global connectedness of the Internet, making cultural differences

negligible. E-commerce also enables a firm to communicate with its customers more efficiently and capture opportunities to seize potential customers in remote regions that traditional methods have difficulties accessing. We submit that these affirmative e-commerce factors are reflected in the results.

Model 3 shows that entrepreneurship in importing countries is not statistically related to e-commerce exports; however, CAGE distance eases negative impacts on e-commerce exports. Model 4 tests the relationship between entrepreneurship and each dimension of CAGE distance; we identified that entrepreneurship positively moderated the relationship between e-commerce exports and cultural and economic distance. Entrepreneurship helps people view the world in a nontraditional way, creating business opportunities and facilitating adaptation to uncertain global environments (Timmons et al., 2004). Entrepreneurship is widely viewed as being concerned with technology; creating new products, services, and processes; and spurring entrepreneurs to challenge and exploit adverse environments. Therefore, the difference of cultural and administrative distance might be positively moderated by entrepreneurship, including identifying business opportunities and EO (Miller, 1983; Lumpkin and Dess, 1996, 2001; Knight, 1997; Chandra et al., 2009). In our study, we provide the theoretical and practical implications as follows.

First, we confirm that a firm at the country level in the internationalization process is more likely to choose an overseas market with a shorter CAGE distance, that is, a foreign market most similar to the domestic market (Sousa and Bradley, 2006; Ghemawat, 2001; Blomkvist and Drogendijk, 2013). E-commerce exports are influenced by distance, especially geographic and economic distance, implying that traditional or established entry barriers might be underestimated because of technological innovation. Most people expect geographic distance not to significantly impact e-commerce, which is primarily conducted in cyberspace. On the contrary, we identify that CAGE distance has a negative relationship with e-commerce export performance. This finding provides a theoretical contribution to the e-commerce export research field.

Second, as entrepreneurship in importing countries increases, the relationship between CAGE distance and e-commerce exports becomes less negative. We suggest that e-commerce might be a unique entry mode backed by current technology innovation and derived from a traditional internationalization model. E-commerce provides options to choose between gradual and rapid internationalization. The following has been suggested.

Opportunity favors the prepared and connected firms. International opportunity discovery requires favorable conditions within the firm to exist in terms of prior international and technical knowledge, intellectual property, openness/access to information sources, including the Internet, and firm characteristics, such as EO. The discovery process did not occur simply through serendipitous encounters with new information from networks or referrals. (Chandra et al. 2009)

In line with this argument, we believe that this study contributes toward expanding the role of EO in the context of country distance and e-commerce.

By better understanding the relationship between e-commerce exports and distance, our study can develop performance-related strategies for e-commerce export managers. For firms, differences between countries are familiar concepts; however, if the cultural or geographic distance is only recognized, they will be seen as being disconnected. Furthermore, if distance is not considered a single framework, the differences between countries may seem to be a mosaic. The more efficiently the differences between countries are recognized the more likely an entity to overcome each distance.

Pre-solving the distance problem can mitigate the negative impact of distance on

performance. The results of this study show that geographic distance and economic distance have negative effects. Therefore, to overcome problems associated with geographic distance, firms should take proactive measures to show greater interest in logistics and transportation systems. Similarly, economic distance should explain large and attractive market entry and possible resultant friction. In some cases, the "paradox of distance" may be shown when performance is relatively high in the distance (Evans & Mavondo, 2002). However, because of the uncertainty arising from a distance, the distance paradox arises from more significant market interest and customers. In addition, cultural and institutional distance does not negatively affect performance; however, that does not mean it should be overlooked. On the contrary, cultural distance hinders learning about customers and markets, and institutional distance can lead to risk and uncertainty because of inexperience with rules and regulations. In other words, managers should be careful not to overlook the problem or underestimate differences with foreign markets.

Some of the practical implications are related to Korea-specific factors. In this study, the CAGE distance from Korea to importing countries shows a noticeable difference on a continent-by-continent basis. Along with this finding, Korean firms must consider various options when selecting an overseas market to enter. Firms are also cautious about the country's distance with the virtuality trap (Yamin and Sinkovics, 2006). Because of strong interaction with overseas buyers, e-commerce exports might cause firms to fall into a virtuality trap and assume that they understand the market conditions. Therefore, during overseas market selection, a firm should choose a country with a higher level of entrepreneurship. A firm may also mitigate geographic distance problems by selecting a country with higher logistics efficiency. Total FDI flows into a region or country is also a telling indicator that aids in selecting a target country for e-commerce export.

Although this paper has the aforementioned significant findings, we concede that it has some limitations, and we recommend further research for the field to progress. First, this paper might reflect country-specificity, primarily the Korean context, and some countries were excluded from the samples, which might present some generalization limits of the study. Future research needs to expand to encompass more countries and regions. Second, the study measured variables based in the 2010–2018 period; this measurement period possibly arouses caution as to whether it reflects current distances, particularly cultural distance, and as to whether the impact of management capability on cultural distance is considered. As with previous studies, different input values produce different outputs. Therefore, additional factors influencing distance and other possible distance measurements need to be developed. Third, the effects of the external shock of COVID-19 are still ongoing, which has changed all business and export environments, including e-commerce exports. Therefore, it is still premature to judge whether changes in e-commerce export performance are temporary due to shocks or whether they herald a shift in the export environment. It is, however, definite that follow-up research is needed to focus on the "external impact effect" in the foreseeable future. Fourth, the Hofstede index has previously been added to the fifth dimension, Long-Term versus Short-Term Orientation (LTO), and the sixth dimension, Indulgence Versus Restraint (IVR). However, the study has the limit that the Hofstede index was measured using only four dimensions: Power Distance Index (PDI), Individualism versus Collectivism (IDV), Masculinity versus Femininity (MAS), and Uncertainty avoidance index (UAI). In a future study, the complete Hofstede index should be applied to measure cultural distance. Finally, we took a composite index for the entrepreneurship variable and the efficiency of logistics. However, they could have various other constructs and impose some limits on explaining their impacts on e-commerce.

Notwithstanding some limitations, this paper tries to tackle distant issues related to international trade and business, a once popular but now forgotten research topic. Yet, distance still matters. The challenging question we may need to answer shortly is, "What does distance have to do with us?"

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Appendix. CAGE Distance Scores

We measured the country distance with the CAGE framework, between Korea and importing countries, based on Kogut and Singh (1988). The scores of calculated CAGE distance were converted to the range from 1 to 100 by following Blomkvist and Drogendijk's (2013) formula:

$$X_j^D = \left[[(X_j - min_{pd})/R_{pd}]99 \right] + 1$$

Where:
X_j^D: the converted score of CAGE distance for importing country j.
X_j: the score of CAGE distance before conversion for importing country j.
min_{pd}: the minimum score of CAGE distance before conversion.
R_{pd}: the score range of CAGE distance before conversion.

Country	CAGE Distance	Country	CAGE Distance	Country	CAGE Distance
Mainland China	1.0	Turkey	59.8	Uganda	83.8
Japan	10.4	Croatia	59.8	Australia	83.9
Slovenia	11.6	Sri Lanka	60.4	Madagascar	85.0
Hong Kong (China)	15.3	Singapore	60.8	Panama	85.4
Greece	26.2	Hungary	64.0	Libyan Arab Jamahiriya	86.7
Bahrain	34.4	Romania	64.0	Cameroon	87.2
Philippines	34.4	Iran	64.8	Zambia	87.3
Vietnam	36.7	Italy	65.1	Canada	87.5
Saudi Arabia	41.1	Finland	68.5	Costa Rica	88.2
Thailand	41.6	Ukraine	69.2	South Africa	88.9
Kazakhstan	42.0	Serbia	69.4	Ireland	89.0
Czech Republic	42.7	Lebanon	69.8	El Salvador	89.2
Lao People's Dem. Rep.	43.4	Jordan	70.5	Ghana	89.5
Portugal	44.0	Bulgaria	71.1	Mozambique	90.1
Malaysia	45.1	France	72.0	Colombia	90.2
Oman	45.5	Egypt	73.3	Cote d'Ivoire	90.5
Bangladesh	48.7	Germany	74.3	Denmark	90.7
Estonia	52.1	Belgium	74.8	Guatemala	90.8
Myanmar	52.6	Iraq	75.1	Chile	91.1
India	54.2	Iceland	76.0	United States of America	93.1
Lithuania	54.6	Trinidad and Tobago	77.5	Nigeria	93.3

Country	CAGE Distance	Country	CAGE Distance	Country	CAGE Distance
Indonesia	55.8	Austria	77.9	Uruguay	93.7
Israel	56.6	Qatar	78.6	Venezuela	93.8
Russian Federation	57.1	United Kingdom	78.9	Jamaica	93.8
Poland	57.2	Ethiopia	79.0	Switzerland	93.8
Latvia	57.2	Mexico	80.0	Norway	94.0
United Arab Emirates	57.6	Algeria	80.5	Brazil	94.0
Kuwait	57.8	Netherlands	81.8	Sierra Leone	94.8
Spain	58.6	Sweden	82.0	Peru	95.7
Pakistan	59.1	Morocco	82.2	Ecuador	96.0
Slovakia	59.5	Kenya	82.7	Argentina	98.2
Puerto Rico	59.6	Tanzania	82.8	Luxembourg	100.0