How do small-to-medium-sized e-commerce businesses stay competitive? Evidence on the critical roles of IT capability, innovation, and multihoming

Qin Weng, Danping Wang, Stephen De Lurgio II, Sebastian Schuetz

Abstract

Purpose — Small-to-medium-sized enterprises (SMEs) in e-commerce often invest in information technology (IT) to stay competitive. However, whether and how IT capability translates into financial performance requires further research. This paper examines the role of IT capability in enabling value proposition innovation (VPI) as an important mechanism that improves financial performance for Chinese e-commerce SMEs during the COVID-19 pandemic. We argue that IT capability is critical for enabling innovation because it elevates SMEs' understanding of changing customer needs, especially when SMEs operate on multiple e-commerce platforms (multihome).

Design/methodology/approach — We used PLS-SEM and tested the hypotheses that IT capability mediated by VPI and moderated by multihoming increases the financial performance of e-commerce SMEs through a survey among 206 Chinese SMEs operating on Taobao.

Findings — We find that higher levels of IT capability lead to better financial performance, but also that the effect is fully mediated by VPI. Moreover, the effect of IT capability on innovation is enhanced when vendors operate on multiple platforms.

Originality/value — The study identifies VPI as an important mechanism through which SMEs can leverage their IT capability to adapt, innovate, and thrive in competition. Our work suggests that using technology to develop innovative ideas and identify opportunities (which are reflected in VPI) is key to success, and that doing so is more likely when vendors multihome. Thus, this study contributes to the innovation literature by explicating a concrete link between IT capability, multihoming, VPI, and increased financial performance. Different e-commerce stakeholders, including SME owners, IT and service providers, and e-commerce platforms, can benefit from the findings of this work.

Keywords — multihoming, value proposition, innovation, e-commerce, IT capability, financial performance

Paper Type — Research Paper

1. Introduction

Small-to-medium-sized enterprises (SMEs) are stand-alone firms with fewer than 500 employees (Baird *et al.,* 1994). SMEs constitute 90% of businesses and employ more than 50% of workers worldwide, contributing up to 40% of the GDP in emerging economies, and up to 55% in developed economies (Arnold, 2019; World Bank, 2021). Hence, the importance of SMEs to the world's economy cannot be overstated.

Unfortunately, SMEs are vulnerable to exogenous shocks. This is because SMEs have fewer resources to draw upon than larger companies. For instance, 50% of SMEs have less than 15 days of operating capital on hand (Fairlie, 2020). This relative sparsity of resources (Cooper *et al.,* 1994; Ebben and Johnson, 2005; Gibb, 2000; Lee *et al.,* 1999) limits the options for SMEs to respond to exogenous shocks. For example, during the COVID-19 pandemic, 43% of U.S. SMEs temporarily closed and employment by U.S. SMEs decreased by 40% (Bartik *et al.,* 2020).

It thus behooves researchers to understand how SMEs can use their existing resources to stay competitive. Information technology (IT) capability is such a resource that, we argue, exists in SMEs and that is central to their performance. Therefore, understanding how SMEs can leverage their IT capability to achieve financial success can offer valuable insights for SMEs and their stakeholders.

The focus of this study is on the role of IT capability in allowing SMEs to adapt to changing customer demands. Our basic premise is that for SMEs to grow and remain profitable

in fierce market competition, they must make efficient use of their IT resources to innovate their value propositions. Our work thus extends the literature which has already established the vital role of business model innovation (BMI) in driving business success (e.g., Casadesus-Masanell and Ricart, 2010; Kim and Min, 2015; Zhang *et al.,* 2021) but scarcely examined the role of antecedent factors, such as IT capability, that enable innovation. Specifically, the literature largely focuses on IT-enabled innovation as an outcome without specifically examining how IT capability enables innovation (e.g., Arnold *et al.,* 2016; Kiel *et al.,* 2017, Erevelles *et al.,* 2016). Understanding how and when IT capability leads to innovation is critical, as investments in IT often fail to yield the anticipated results (see Mithas *et al.,* 2012). Additionally, the current literature on innovation has not provided a tailored understanding of SMEs (see Zhang *et al.,* 2021), and hence our study focuses on technologies and innovations that are contextually important for such businesses.

Against this backdrop, we examine the role of IT capability in driving value proposition innovation (VPI) and SMEs' financial performance. We ground our theorizing in the resource-based view (RBV) and situate our research on Taobao merchants during the COVID-19 pandemic. Taobao is a Chinese e-commerce platform that facilitates 15% of the global e-commerce trade (Koetsier, 2020) by providing digital storefronts to over 10 million SMEs, many from rural China (GMA, 2021). With the pandemic disrupting consumers' lives and the economy, SMEs on Taobao were hard hit and needed to adapt to their dramatically changing customer demands. Consequently, it is an ideal empirical context to study the role of IT

capability in enabling innovation and its downstream effects on firm performance. In other words, even though our study does not focus on the effects of external shocks, this environment enables us to observe more innovations as vendors try to adapt and the outcomes of these innovations in a limited time window. Furthermore, to contextualize our model to the e-commerce context, we further incorporate SMEs' decision of multihoming (i.e., operating their business on multiple e-commerce platforms including Taobao).

We conducted a survey among 206 Chinese SMEs operating on Taobao. We used PLS-SEM to test the hypothesis that IT capability mediated by VPI and moderated by multihoming increases the financial performance of e-commerce SMEs. Our findings show that IT capability drives financial performance by enabling SMEs' VPI. Our findings also show that this effect is heightened when SMEs operate on multiple platforms (i.e., multihoming) and that IT capability only exerts an indirect effect on financial performance through VPI. In other words, the effect of IT capability on financial performance is fully mediated by VPI. Taken together, our findings highlight the vitality of IT capability for SMEs to stay adaptive and illustrate that for SMEs to reap its benefits, they must use it for VPI. These insights advance our understanding of the financial impacts of IT capability in the context of SMEs as well as the impacts of multihoming decisions in e-commerce. Different stakeholders, including SME vendors, IT and service providers, as well as e-commerce platforms, can potentially benefit from these findings.

We structure the rest of the paper as follows. We first present the theoretical background of the study. We next present the research model and develop corresponding hypotheses. We

then describe the research method and report the results of the analyses. Finally, we discuss the contributions, implications, and limitations of the study.

2. Background

2.1. Resource-based View

The overarching theory that guides our theorization is the resource-based view. RBV suggests that a firm achieves sustained competitive advantage only when it possesses resources that are valuable, rare, imperfectly imitable, and non-substitutable (Barney, 1991; Wernerfelt, 1984). The theory implies that the effects of organizational resources on firm performance and competitive advantage are significant (Peteraf, 1993; Priem and Butler, 2001), substantiated by abundant empirical evidence (e.g., Danneels, 2002; Leonard-Barton, 1992; Lu and Ramamurthy, 2011; Mikalef and Gupta, 2021; Tripsas, 1997; Tripsas and Gavetti, 2000; Wamba *et al.,* 2017).

Researchers have described resources using different terms. This study employs the conceptualization by Wade and Hulland (2004), contextually suitable for our study on e-commerce vendors. According to their work (Wade and Hulland, 2004), resources refer to the assets and capabilities that are available and useful in detecting and responding to market opportunities or threats. Assets, serving as input and output of business processes, denote anything tangible (e.g., IT infrastructure) or intangible (e.g., patents) a firm can use to create, produce, and/or offer its products to a market, while capabilities are repeatable patterns of actions (e.g., managerial abilities) in the use of assets for these purposes (Sanchez and Heene, 1997). We propose that the synergy between IT and business processes that is captured by IT

capability, coupled with an appropriate homing strategy, contributes to innovation in value propositions, which in turn becomes a valuable, rare, and imperfectly imitable resource that leads to improved competitive advantage and financial performance.

2.2. IT Capability

A firm's IT resources are rarely a source of sustained competitive advantage in and of themselves (Mata *et al.,* 1995). Instead, IT resources exert an influence on a firm through complementary relationships with the firm's other assets and capabilities (Wade and Hulland, 2004). In his seminal work, Teece (1986, p. 288) points out that "certain complementary capabilities or assets will be needed for successful commercialization" of an innovation. Consistent with prior research, we contextually define IT capability as a firm's ability to integrate and deploy its IT resources in its business processes (Gupta and George, 2016). Different IT resources can be used to develop IT capability. For example, enterprise systems technology can be used to store information to facilitate generating new ideas about meeting customer needs and improving order fulfillment efficiency (Cotteleer and Bendoly, 2006; Tian and Xu, 2015). Newer technologies such as 3D printing and blockchain can be used to deliver products or services in a circular economy (Chaudhuri *et al.,* 2022). Big data consumer analytics can help transform marketing strategies by extracting consumer insights from sales data (Erevelles *et al.,* 2016). Gamified platforms found new ways to innovate business models that help engage and attract users (Gao *et al.*, 2023). Further, digital technology can not only enable

BMI but also be integrated with other business models to form new business models (e.g., Böttcher *et al.*, 2023).

In this study, we examine IT capability developed through the integration and deployment of technologies. We look at two technologies (i.e., enterprise systems and analytics) that are broadly used by SMEs in our research context to support and complement their core business functionalities and processes. Specifically, SMEs selling goods on e-commerce platforms often utilize enterprise systems to manage their operations, and analytics (provided by the e-commerce platforms) to track and understand consumer behavior.

2.3. Value Proposition Innovation

Companies need to constantly innovate to be successful in the digital world (Amit and Zott, 2015; Linz *et al.,* 2017). Many firms desire to innovate but lack the capabilities to do so (Chesbrough, 2010). To this end, some researchers have explored whether IT-enabled digitalization—such as the Internet of Things (Arnold *et al.,* 2016; Kiel *et al.,* 2017) or big data analytics (Erevelles *et al.,* 2016)—can lead to innovations such as new products, services, and relationships. Despite the gained momentum in studying BMI and its components (e.g., VPI), the number of empirical insights remains limited (Rachinger *et al.,* 2018). As digitization offers both pressures and opportunities for businesses in terms of BMI (Rachinger *et al.,* 2018), it behooves researchers to examine whether BMI is a plausible mechanism through which digitization impacts firm performance. To our knowledge, no prior research has empirically examined how IT capability affects performance through VPI. Our study thus contributes to the BMI literature

by shedding light on how IT capability links to financial performance through enabling VPI, a key component of BMI.

VPI refers to creating an innovative portfolio of solutions and offering it to customers in a novel way (Clauss, 2017). That is, by offering innovative products or services or by targeting new market segments, VPI challenges either the industry or the market status quo. The concept of value proposition originates from Lanning and Michaels's (1988) work which argues two activities are critical for a business: developing a value proposition and creating a value delivery system. Three processes are involved in these key activities: identifying the attributes that customers consider of value, assessing opportunities in each segment to deliver superior value, and explicitly choosing the value proposition that optimizes the opportunities (Frow and Payne, 2011).

Our research focuses on VPI and its impact on firms' financial performance because VPI is critical for driving innovations in businesses (Johnson *et al.,* 2008; Morris *et al.,* 2005; Teece, 2010). Across the business innovation literature, VPI is seen as the first step in the process by which businesses create new products or services as it is impossible to innovate without first identifying a clear value proposition (Johnson *et al.,* 2008). VPI facilitates firms' differentiation from their competition by providing offerings that are distinctive, measurable, and sustainable (Kim and Mauborgne, 2014; Lindič and Da Silva, 2011), and thus serves as a value alignment mechanism in co-creating values shared among stakeholders (Frow and Payne, 2011). Notably,

research has mainly examined the consequences of VPI. Therefore, examining to what extent IT capability impacts VPI will allow us to better understand the antecedents to VPI.

2.4. Multihoming

Adapted from Rochet and Tirole (2003), multihoming in our study is defined as a vendor selling goods on several platforms simultaneously, whereas singlehoming is a vendor selling goods on a single platform exclusively. In the e-commerce setting, homing decisions may have different impacts on performances for both the platform owner and platform users. Research on multihoming generally focuses on investigating the optimization of platform benefits through equilibrium modeling (e.g., Barua and Mukherjee, 2021; Dou and Wu, 2021). Empirical work on how homing choices affect e-commerce vendors is scant.

Empirical evidence, however, suggests that homing is a critical consideration for e-commerce vendors in their marketing strategies. For example, a recent survey commissioned by Amazon showed that between 54% and 80% of sellers, even small ones, used more than one channel to reach their customers (Davies *et al.*, 2022). Our interviews[1] with e-commerce vendors not only corroborate the prevalence of multihoming, as mentioned above, but also suggest that multihoming is a double-edged sword. As one vendor commented, "Although implementing a multihoming strategy increases operating costs, we are still able to generate profits. This strategy allows us to reach a larger pool of potential consumers, which outweighs the additional

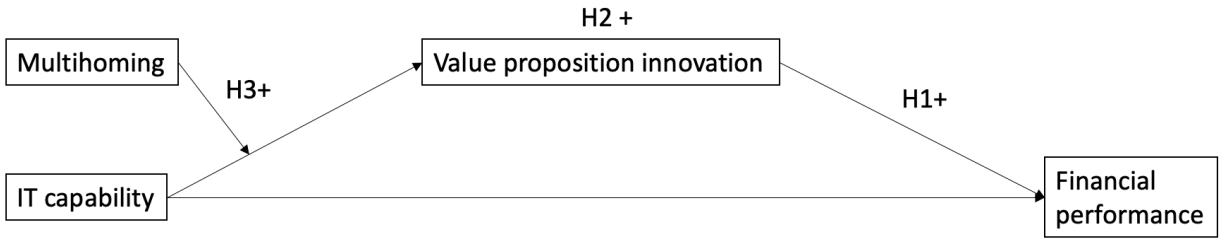
[1] In the design stage of our study, we conducted interviews with 10 randomly recruited e-commerce SMEs' owners to identify relevant constructs. The interviews were carried out in Chinese and then translated into English.

expenses." A recent literature review (Westerveld *et al.*, 2023) also suggests that the platforms on which vendors operate may affect value proposition innovation diversifications. Considering that many firms are multihoming in today's online business (Koh and Fichman, 2014), it benefits both practice and research to uncover the role of the multihoming choice in affecting a firm's financial performance through empirical evidence.

3. Hypotheses Development

The model summarizing our hypothesized relationships is shown in Figure 1. In this model, we propose that for e-commerce SMEs, IT capability affects financial performance through enhanced value proposition innovation. Further, this mediation effect is moderated by the number of platforms on which an e-commerce vendor sells products.

Figure 1
Research model



Source: Authors' own work

3.1. VPI and Financial Performance

Prior work has established that innovation facilitates improvements in firm performance, especially for SMEs (Cucculelli and Bettinelli, 2015; Heij *et al.,* 2014; Waldner *et al.,* 2015). Firms continuously innovate their value propositions to generate increased market shares, as VPI

is important not only for appealing to niche customers but also for attracting larger shares from mainstream customer segments (Govindarajan and Kopalle, 2006). Substantial gains in performance can be achieved by comprehensively reconfiguring value propositions to fully utilize all the benefits that disruptive technologies offer (Bohnsack and Pinkse, 2017). Organizations with more attractive value propositions are more likely to be successful than those with less attractive value propositions (Parnell, 2006). Prior work has illustrated the financial performance impact of business innovations, such as changes in return on sales (Cucculelli and Bettinelli, 2015). Thus, we propose:

H1: VPI directly and positively affects financial performance.

3.2. IT Capability, VPI, and Financial Performance

Resources are generally seen as a source of competitive advantage and firm performance (Peteraf, 1993; Priem and Butler, 2001). As we have previously elucidated, IT capability is an important firm resource. However, even though IT has become a "strategic necessity" (Clemons, 1991), it is not in itself a source of a long-term competitive advantage (Hitt and Brynjolfsson, 1996). That is because IT resources are typically not unique and thus available to competitor firms as well.

For IT resources to lead to advantages, it depends on "how" they are used (Mikalef and Pateli, 2017). If used in an innovative way rather than purely for efficiency improvement, the added value may be generated, and sustainable supranormal profit may be earned (Bain, 2013).

We argue that IT capability related to enterprise systems and analytics allows SMEs to better understand the changing user demands. This is because these technologies allow SMEs to collect, store, and analyze data on customer behaviors. Firms can use this data to sense the environment and learn, coordinate, and integrate new information into their product offerings (Pavlou and El Sawy, 2011). Thus, firms can draw advantage from these technologies if they utilize this data and make the right inferences to innovate their value propositions (e.g., new products or services) to match changing customer needs.

Dynamically using IT capability to drive innovation might be especially important in turbulent environments (Chen *et al.,* 2014, Chen *et al.,* 2017). Prior research shows that flexible and strategically aligned IT drives firm performance in volatile markets (Tallon and Pinsonneault, 2011). Its role might be even more vital during exogenous shocks (e.g., the COVID-19 pandemic) that lead to rapid changes in consumer behavior and demand (Amankwah-Amoah *et al.,* 2021; Di Crosta *et al.,* 2021; Mikalef *et al.,* 2021). For instance, during the COVID-19 pandemic (Liu *et al.,* 2021), Taobao customers were locked at home, and Taobao resellers understood their customers' boredom and innovated their offerings using livestreaming technologies to not just sell products but also entertain their customers (Wu, 2022). Thus, turbulent environments require firms to possess improvisational capabilities that help them constantly reconfigure and change existing resources to address new challenges and market demands (Pavlou and El Sawy, 2010). Therefore, we argue that the main mechanism through which IT capability drives financial performance is by enabling VPI. We propose:

H2: VPI mediates the relationship between IT capability and financial performance.

3.3. The Moderating Role of Multihoming

Multihoming refers to SMEs' use of multiple e-commerce platforms to sell goods. Albeit the various e-commerce platforms have much in common, they frequently differ in how products are marketed. For example, whereas Taobao is more of a traditional e-commerce store like Amazon in which customers search for products in a digital catalog, other platforms, such as Pinduoduo or Kuaishou, emphasize recommendations and group-buying features and leverage short video and livestreaming features (Guan *et al.,* 2022). Thus, multihoming offers SMEs not just access to a larger market but also positions SMEs to detect and adapt to successful go-to-market trends and innovations (e.g., livestreaming succeeding at Kuaishou and then being carried over to Taobao). As argued, SMEs' ability to detect and respond to such trends depends on their IT capabilities as they enable SMEs to collect, store, and analyze customer data and create innovative ideas. Multihoming provides SMEs with more exposure to customer and product data and thus more opportunities to leverage their IT capabilities to innovate value propositions. Thus, we propose:

H3: The more platforms an SME operates on, the stronger the effect of IT capability on VPI.

4. Method

4.1. Data Collection and Sample

Our data collection targeted vendors on Taobao, one of the largest Chinese e-commerce platforms, for three reasons. First, consistent with our research objective, most vendors on Taobao are SMEs. Second, compared to large enterprises, the business models of these vendors are simple to describe and measure. Third, these vendors frequently innovate to respond to the ever-changing environment (Borch and Madsen, 2007), which makes them ideal candidates to study the phenomenon of VPI.

Data were collected via an online survey. The pretest, pilot, and final surveys were created on Wenjuanxing, an online survey platform that allows users to create, design, and analyze various types of survey questionnaires, and distributed via a web link through WeChat. Participants could access it and respond via smartphone or personal computer from November 18, 2020 to December 14, 2020. We first pretested by randomly inviting 15 vendors on Taobao in person or through WeChat to take the survey via the web link. We then piloted the survey by soliciting 571 students from a professional MBA program through the MBA students' WeChat group to participate. A criterion for participation in the pilot was to have at least one year of experience working for a Taobao SME. We received 71 responses from the solicited students, out of which 57 responses met that criterion. Based on the pilot, we adjusted the wording and order of survey items.

We surveyed Taobao vendor SMEs in Sichuan, Shandong, and Jiangsu provinces for the primary data collection because the rapid development of e-commerce in these regions ensured an adequate sample size. We distributed the survey to the vendors' owners through each region's Taobao vendors' WeChat group. A total of 780 individuals were invited to participate in the survey. Out of those, 308 surveys were collected, resulting in a response rate of 39.5%.

These 308 participant responses were screened for attentiveness with two attention check questions, straightlining and speeding. Responses that failed either attention check, had excessive straightlining, or were from those who took less than 360 seconds (6 minutes) to complete the survey were dropped. This screening left 206 valid and usable responses—a final response rate of 26.4% (206 of 780).

Of the 206 responses retained, none had missing values. Approximately 62% of our sample were SMEs in the home and living category, most (88.35%) with less than ten years of firm age (see Table I). By design, the size of the organizations varied from small to medium. The most popular product categories include home goods, food, and clothing.

<INSERT **TABLE I** ABOUT HERE>

4.2. Measurement

Our survey instrument measured three constructs, VPI, IT capability (ITC), and financial performance, using items derived from previous measures found in previous literature. Specifically, based on the work of Tallon and Pinsonneault (2011), we focused on the four dimensions of IT use relevant to our research context, i.e., supplier relations, customer relations,

product and service enhancement, and marketing and sales. For each dimension, we examined the traditional management information systems (MIS) and two related technologies suggested by Park et al. (2017), which include business intelligence (BI), and Communications. However, reviewing the data, we noticed that the communication dimension did not provide sufficient variance. Thus, only MIS and BI were retained for each IT use dimension, resulting in 8 items to measure IT capability, including customer relations with MIS and BI, supplier relations with MIS and BI, product and service enhancement with MIS and BI, marketing and sales with MIS and BI. The items from these measures were further adapted based on interviews with vendors and experts in e-commerce. For example, the IT capability questions focused on the vendors' most prevalent technologies and platforms (refer to Table AI in Appendix A for the measurement items).

To assess the face and content validity of our adapted measures, we relied on interviews and consultations with the specific and related literature from which the items were derived. Feedback from the pretest survey participants—Taobao vendors—along with data availability and completion time considerations were considered, resulting in dropping some items and modifying others. After the pilot study, we further adjusted the wording and order of survey items. At this point, we assessed construct validity with the remaining items via the procedure outlined in Appendix B and finalized the items on the survey.

The final survey contained 12 items for VPI, 8 for IT capability, and 4 for financial performance (Appendix A, Table AI). Additional questions asked vendors about the number of

platforms they sold on, their primary industry (i.e., clothing and accessories, beauty and personal care, home and living, or food and snack), and the size (in number of employees) and age (in years) of the firms.

The tested model contained three latent variables: IT capability, multihoming, VPI, and financial performance (see Table II). In this model, we tested IT capability's impact on financial performance, both directly and mediated by VPI; the path from IT capability to VPI was moderated by multihoming. Vendor's size, industry, and age acted as controls for the endogenous constructs (VPI and financial performance).

*<INSERT **TABLE II** ABOUT HERE>*

4.3. Results

We used consistent PLS-SEM (PLSc) to analyze the model shown in Figure 1 because of sample size considerations, relative model complexity, the purpose of the model, and the non-normality of many of the indicators. First, the sample size of 206 is below the ten samples per indicator recommendation for covariance-based SEM (Hair *et al.,* 2011; Hair *et al.,* 2019a), hence we chose PLS-SEM which is partial least squares based. Second, one of the constructs in the model had twelve indicators and another eight. Sarstedt et al. (2017) specifically mention the number of indicators per construct exceeding four as a threshold for considering using PLS. Third, our analysis was "concerned with testing a theoretical framework from a prediction perspective" (Hair *et al.,* 2019b, p. 5). We predict VPI and financial performance from IT capability and multihoming. Finally, there was significant non-normality in the distributions of most of the

indicators. PLS-SEM is non-parametric and uses bootstrapping to determine confidence intervals and *p*-values[2]. Therefore no transformations to meet distributional assumptions were required (Hair *et al.,* 2011; Hair *et al.,* 2019a; Hair *et al.,* 2019b; Sarstedt *et al.,* 2017). We used consistent PLS specifically to ensure that common factor, composite, and formative constructs[3] were composed in accordance with their theoretical underpinnings (Dijkstra and Henseler, 2015; Hair *et al.,* 2019a).

We first ensured that common-method bias (CMB) did not impact our estimates (Podsakoff *et al.,* 2003; Rönkkö and Ylitalo, 2011). To assess the level of CMB, we performed the full collinearity variance inflation (FCVIF) test (Kock and Lynn, 2012). The FCVIF test is a superior diagnostic for variance-based SEM, like PLS-SEM (Kock, 2015; Kock and Lynn, 2012). This test indicated no CMB. However, to further safeguard against biased estimates, we analyzed the model with and without an unrelated latent marker variable. The latent marker approach has been shown to account for and reduce CMB in PLS-SEM results (Chin *et al.,* 2013). We found no qualitative differences in the results with or without the latent marker variable. All the results reported are from the model with the latent marker variable included.

Before interpreting the model, we confirmed that multicollinearity was not an issue. To do so, we assessed variance inflation factors (*VIFs*). We found that all *VIFs* between constructs were less than the 3.3 threshold (ref. Appendix A, Table AIII) (Hair *et al.,* 2019a).

[2] SmartPLS 3 (Ringle *et al.,* 2015) & SmartPLS 4 (Ringle *et al.,* 2022).
[3] Controlling for firm industry used a formative construct per Hair et al. (2022).

Next, we confirmed that the construct measurements had sufficient reliability and validity. Item loadings for the constructs were above 0.70. Items loaded more strongly on their focal construct, i.e., the crossloadings were lower than the loadings (Hair *et al.*, 2019a; Hair *et al.*, 2022) (see Appendix A, Table AII). Table III shows that all reliability coefficients exceeded 0.70, and the AVE values exceeded 0.50 (Hair *et al.*, 2019a). Table II shows that the square roots of the construct AVEs exceeded their pairwise correlations with the other constructs. Moreover, discriminant validity was supported via the more sensitive HTMT criteria (Hair *et al.*, 2022; Henseler *et al.*, 2015). Table IV reports the HTMT ratios for each construct, all less than the recommended threshold of 0.85, indicating sufficient discriminant validity (Hair *et al.*, 2020; Henseler *et al.*, 2015).

*<INSERT **TABLE III** ABOUT HERE>*

*<INSERT **TABLE IV** ABOUT HERE>*

The adjusted R^2 values for the model were 0.488 and 0.701, indicating moderate to substantial effects on financial performance and VPI. Out-of-sample predictive validity was assessed via Q^2. All Q^2 values were above zero, indicating IT capability, Multihoming, and VPI had "predictive relevance" (Hair *et al.,* 2011, p. 145). Further, the Q^2 values of 0.292 and 0.417 for the latent exogenous variables indicated small and moderate out-of-sample predictive accuracy for financial performance and VPI, respectively (Hair *et al.,* 2019a).

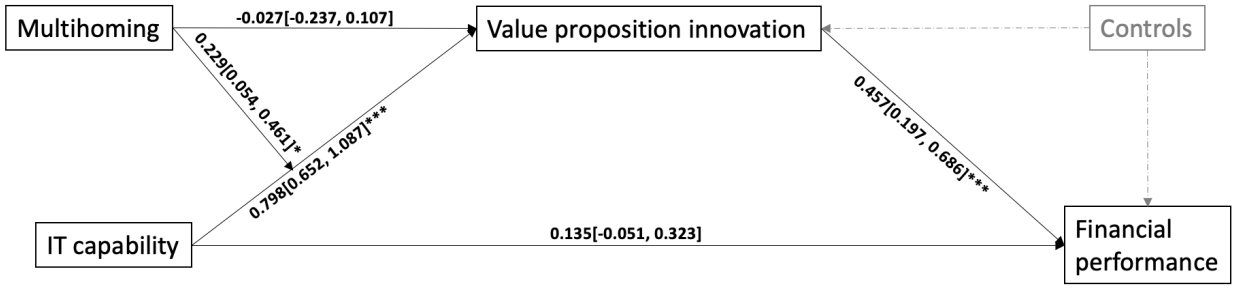
The standardized path coefficients are shown in Figure 2. We found that ITC had a small insignificant direct effect on financial performance (B = 0.135 $CI_{95\%}$ [-0.051, 0.323] and a

significant direct effect on VPI (B = 0.798 $CI_{95\%}$ [0.652, 1.087]). The statistically significant direct path from VPI to financial performance (B = 0.457, $CI_{95\%}$ [0.197, 0.686]) supported H1. To assess the hypothesized mediation (H2), we estimated indirect and total effects (Zhao *et al.,* 2010). These results are shown in Table V. The statistically significant indirect effect of ITC through VPI on financial performance (B = 0.365, $CI_{95\%}$ [0.156, 0.598]) supported H2.

*<INSERT **TABLE V** ABOUT HERE>*

Figure 2

Direct effects from PLS structural equation model results



Note(s): Coefficient [$CI_{95\%}$]; p-value * $p < 0.05$; ** $p < 0.01$, *** $p < 0.001$

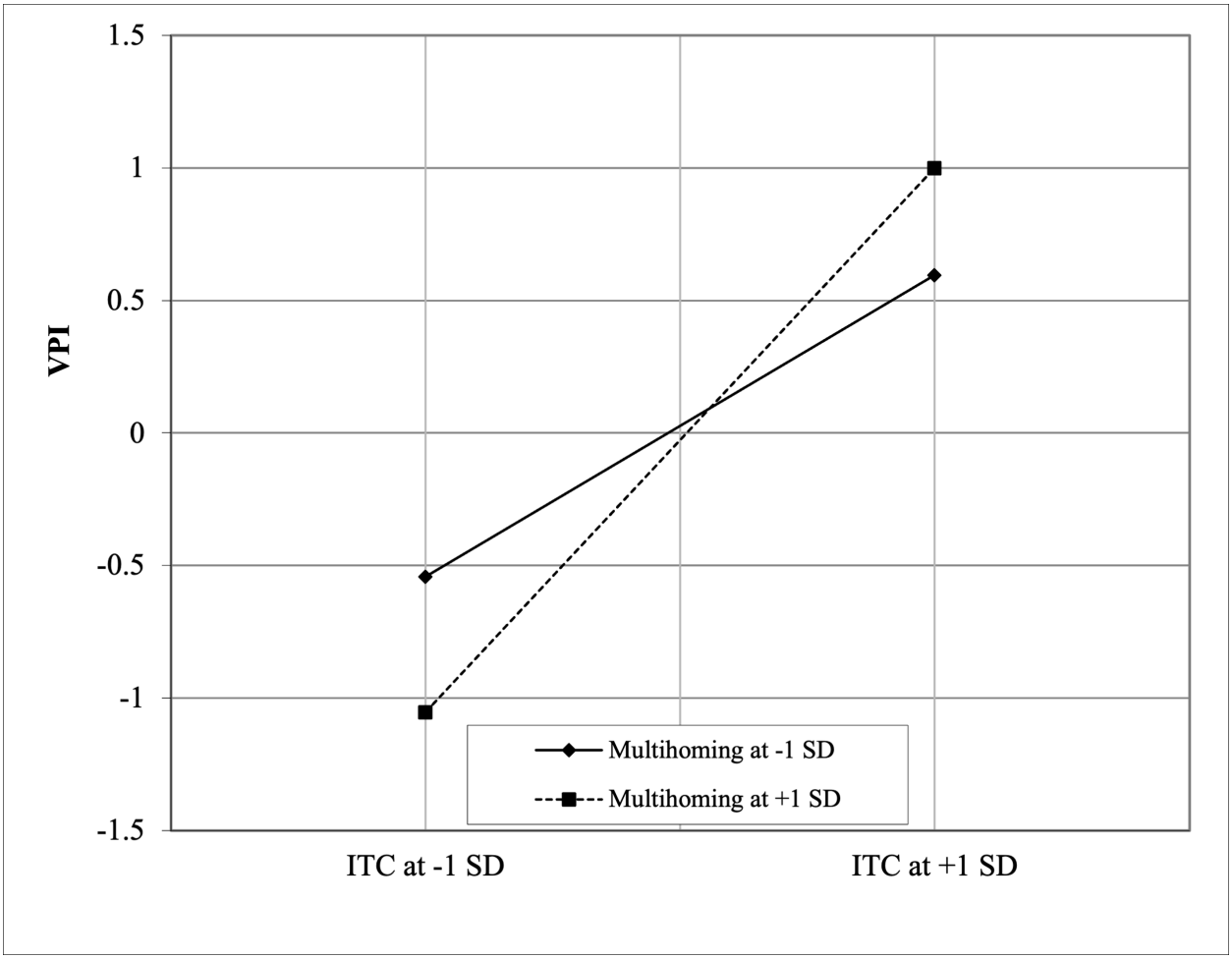
Source: Authors' own work

Regarding moderation by multihoming, the model showed that multihoming had a statistically significant moderation effect on the relationship between IT capability and VPI (B = 0.229, $CI_{95\%}$ [0.054, 0.461]). This interaction is illustrated in Figure 3. In particular, it shows an increased slope in the relationship between IT capability and VPI at higher levels of multihoming. That is, ceteris paribus, higher (lower) levels of multihoming increased (decreased) the positive relationship between IT capability and VPI. However, it also shows that less

multihoming for lower levels of IT capability results in more VPI on average. Additionally, through VPI, this interaction had a small but statistically significant indirect effect on financial performance (B = 0.105, $CI_{95\%}$ [0.018, 0.235]) supporting H3.

Figure 3

Interaction between IT capability and multihoming



Source: Authors' own work

A summary of our findings related to our hypotheses appears in Table VI. We found that increased ITC predicted increased VPI, that VPI was the primary driver of financial performance, and that VPI mediated IT capability's impact on improved financial performance.

Our finding also supported that increased multihoming strengthened the increase in VPI due to IT capability and, by extension, increased financial performance for those vendors with above-average levels of IT capability.

*<INSERT **TABLE VI** ABOUT HERE>*

5. Discussion

5.1. Summary of Results

H1 is supported by the positive, statistically significant path coefficient between VPI and financial performance. That is, we find that SMEs on Taobao with higher levels of VPI experience better financial performance. This supports our conjecture that, for SMEs in the online market context, VPI is a critical component of BMI and has a positive impact on financial performance.

Our results also provide support for H2, that VPI mediates the relationship between IT capability and financial performance. Specifically, we find that IT capability is a strong predictor of VPI. The indirect path through VPI to financial performance is statistically significant with a moderate effect size, yet the direct path from IT capability to financial performance is not statistically significant (Figure 2). This provides evidence of an indirect only effect of IT capability on financial performance through VPI. Vendors in the Taobao marketplace achieve better financial performance through the integrative use of IT to achieve greater levels of VPI.

The model shows that multihoming has a positive, small, but statistically significant moderating effect on the IT capability to VPI relationship, providing support for H3. Further

support is found in the small but significant indirect effect of the interaction between multihoming and IT capability through VPI on financial performance. Table V and Figure 3 illustrate the effect of the interaction of multihoming on VPI. The slope of the line representing high multihoming is steeper than that for low multihoming vendors. That is, as vendors sell on more platforms greater levels of IT capability result in proportionally higher levels of VPI—and ultimately financial performance.

5.2. Theoretical Implication

The theoretical contributions of our work consist of the following. First, this study extends prior work on IT capability and BMI by establishing the relationship between technology, innovation, and performance. By finding that the effect of IT capability is fully mediated by innovation, we identify an important mechanism that explains how IT capability impacts SMEs' financial performance. Our findings thus contribute to the research efforts that aim to unpack the black box between IT investment and profitability (e.g., Mithas *et al.,* 2012). Our finding is particularly noteworthy because, as per RBV, IT in itself cannot be a source of increased profit since it is relatively easy for peers to mimic, leading to decreased marginal and competitive advantage. Here, our study shows that the effect of IT capability is fully mediated by VPI. Thus, we reveal that it is indeed "how" IT capability is used that determines its effect on firms' financial performance. This finding contrasts the traditional focus on the effects of "what" IT or "how much" IT capability affects firm performance. In other words, our finding adds to the literature

by highlighting the importance of examining how IT capability is utilized, rather than merely examining the extent to which and what kind of IT capability is present (Mithas *et al.,* 2012).

Second, this study extends current work on e-commerce research by incorporating the moderating effect of multihoming, an understudied yet contextually important concept, on the relationship between IT capability, VPI, and performance (Koh and Fichman, 2014). Specifically, our study demonstrates that high levels of multihoming increase the effect of IT capability on VPI. Although an extremely common phenomenon for e-commerce SMEs nowadays, few studies have empirically examined multihoming's effect from the vendor's viewpoint. Research on multihoming largely takes a platform optimization approach which mostly helps us to understand how different platform factors operate (e.g., Barua and Mukherjee, 2021; Dou and Wu, 2021). By incorporating multihoming in an empirical model, specifically tailored for SMEs, this study enhances our understanding of vendor strategy and outcomes through actionable insights.

Third, this study empirically examines technology, multihoming, and VPI in a holistic nomological network, thereby elucidating the link among these key elements and how they affect e-commerce SMEs' financial performance. Prior research has provided isolated findings of these elements in different settings (see Zhang *et al.,* 2021 for a comprehensive review). With prior studies providing these concepts as building blocks, our study holistically examines these different elements and extends prior work through an integrative model. As succinctly stated in a recent review on digital transformation (Vial, 2019, p. 118), "Technology itself is only part of

the complex puzzle that must be solved for organizations to remain competitive in a digital world." Our study empirically demonstrates a potential strategic pathway where digital technologies coupled with multihoming structures can be utilized to promote VPI, leading to better firm performance. Importantly, our work extends recent work on BMI as a mechanism to improve firm performance (Clauss *et al.,* 2019) through examining VPI's antecedents in the form of the confluence of IT capability and multihoming. Although ample research exists that supports the functionality of BMI on performance (Cucculelli and Bettinelli, 2015), a more detailed examination of its antecedents helps concretize our understanding of how BMI could be achieved by simultaneously considering platform structure and organizational IT resources.

5.3. Practical Implication

Our study provides several important practical implications for different e-commerce stakeholders, including SME owners, IT and service providers, and e-commerce platforms.

For SME owners, our research provides at least three implications. First, the study suggests that increased BMI via VPI by SMEs in the context of online selling is associated with better financial performance. This confirms that the traditional wisdom on BMI's positive effect on performance also applies to SMEs in the e-commerce setting. Vendors should continuously innovate to perform well in highly competitive and volatile e-commerce environments.

Second, our findings suggest that increased IT capability is associated with greater VPI and by extension financial performance. Importantly, this finding points out an important mechanism that facilitates transforming IT capability into financial outcomes. Specifically,

information technologies, e.g., enterprise systems and analytics, may enable more innovations in business models, helping vendors improve products, identify more opportunities and customers, and provide better services. These technologies fuel the innovations which in turn translate into better business outcomes. However, as the direct effect is insignificant, it is important to highlight that SMEs need to use their IT capabilities for VPI to reap their benefits.

Third, our findings suggest to vendors that selling on multiple platforms does not directly affect financial performance or VPI. However, when IT capability is high, selling on multiple platforms is associated with proportionately greater VPI and by extension financial performance. Yet, when IT capability is low, selling on multiple platforms is associated with proportionately less VPI and by extension financial performance. In other words, multihoming is a catalyst that enhances the effect of IT capability on VPI, suggesting that vendors may garner more of the benefits of technology investments when they operate on multiple platforms.

IT and service providers also stand to gain from these findings by understanding the specific needs of SMEs in the e-commerce landscape. The direct correlation between IT capability and VPI implies a growing market for advanced IT solutions tailored to SMEs. Providers can focus on developing and marketing technologies that support SMEs in innovating their value propositions, with an emphasis on ease of integration across multiple e-commerce platforms.

For e-commerce platforms, the research highlights the nuanced relationship between IT capability and VPI with the support of SMEs' homing strategies. E-commerce platforms may

have reservations about facilitating multihoming—when vendors list their products on multiple platforms. This is because it could reduce the platform's market share or cause SMEs to leave their platform. To discourage multihoming, platforms may offer exclusive IT support that benefits the SMEs' VPI. For example, by providing advanced data analytics services, platforms can help SMEs better understand their sales patterns, customer demographics, and market trends, which can make the proposition of staying exclusive to one platform more attractive. Besides, platforms can focus on creating a superior customer experience, such as faster shipping options, streamlined return policies, or enhanced user interfaces, which in turn can attract and retain the facilitated SMEs. Platforms can also foster a sense of community among vendors by offering networking opportunities, educational content, and forums for discussion, which can increase seller loyalty and reduce the attractiveness of multihoming. In summary, platforms should continually innovate and differentiate their services, especially IT services, to enable SMEs' unique value proposition creation that cannot be easily replicated by competitors, thus reducing the incentive for SMEs to multihome.

5.4. Limitations and Future Research

We recognize several limitations of this study that suggest further research. First, cross-sectional research does not provide sufficient evidence to claim causality. Future research could use longitudinal data to make stronger claims related to causality. Additionally, although the turbulent environment is the backdrop of our study, the cross-sectional data does not capture the variability of the environment. Future research can incorporate the contextual factor over time

and examine how the changing environment (e.g., the degree of turbulence) affects innovations and their effects on financial performance.

Second, our study would be enhanced with objective measures for financial performance. In the current study, we use survey data provided by business owners because it is difficult to obtain financial data for SMEs, especially due to the volatile nature of these businesses. Many businesses come and go and there is no standardized venue to collect such data, nor is this data publicly available.

Third, we should caution against generalizing the results beyond the context of SMEs doing business on online platforms. Our study is designed and carried out in the specific e-commerce context that largely involves SMEs. Specifically, the IT capability items used in this study are also tailored to capture the core technologies (i.e., enterprise systems and analytics) used by these vendors based on interviews with and feedback from these vendors. Although prior literature supports that our results should hold across other contexts, future studies should customize the measurement items when replicating our study in other contexts to better suit the characteristics of the subjects under study. Future research could examine SMEs in different business contexts (e.g., manufacturing, service-sector businesses, financial, or professional services, etc.) that use different technologies to refine and extend the generalizability of our results.

Finally, we only consider VPI as an aspect of BMI in this study. As discussed in detail previously, we focus on one BMI component (i.e., VPI) for the specific research context and

subjects, future studies can extend our study by incorporating other dimensions of BMI. Although VPI is a key component of BMI (Westerveld *et al.*, 2023), future research could examine other components of BMI to gain new insights, thus complementing and extending our results for e-commerce research.

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Tables

Table I

Sample characteristics

Characteristics	n	Cumulative	%	Cumulative %
Company age				
<= 3 years	45	45	21.84	21.84
>3 and <= 5 years	61	106	29.61	51.46
>5 and <=10 years	76	182	36.89	88.35
>10 years	24	206	11.65	100
Company size				
< 10	50	50	24.27	24.27
>= 10 and <50	25	75	12.14	36.41
>= 50 and <100	48	123	23.30	59.71
>= 100 and <300	77	200	37.38	97.09
>= 300 and <500	6	206	2.91	100
Industry				
Clothing and accessories	46		22.33	
Beauty and personal care	10		4.85	
Home and living	127		61.65	
Food and snack	23		11.17	

Source: Authors' own work

Table II

Main constructs	Mean	SD	(1)	(2)	(3)	(4)
(1) IT capability	6.075	0.941	**0.814**			
(2) Value proposition innovation	6.214	0.696	0.745	**0.762**		
(3) Multihoming	2.767	1.204	0.452	0.425	**n/a**	
(4) Financial performance	3.742	0.729	0.548	0.636	0.494	**0.808**

Note(s): The bolded diagonals show the square root of AVE.

Source: Authors' own work

Table III

Reliability and convergent validity for reflective constructs

Construct	Item	Loading	*ρC*	*ρA*	*C's α*	AVE
IT capabilities	ITC1	0.870	0.939	0.944	0.940	0.662
	ITC2	0.767				
	ITC3	0.914				
	ITC4	0.801				
	ITC5	0.872				
	ITC6	0.812				
	ITC7	0.805				
	ITC8	0.636				
Value proposition innovation	VPI1	0.559	0.943	0.945	0.942	0.580
	VPI2	0.802				
	VPI3	0.819				
	VPI4	0.756				
	VPI5	0.802				
	VPI6	0.841				
	VPI7	0.789				
	VPI8	0.772				
	VPI9	0.744				
	VPI10	0.726				
	VPI11	0.764				
	VPI12	0.731				
Financial performance	PER1	0.827	0.882	0.888	0.880	0.653
	PER2	0.833				
	PER3	0.871				
	PER4	0.691				

Note(s): *ρC* = Composite reliability, *ρA* = Reliability coefficient, *C's α* = Cronbach's α, and AVE = average variance extracted.

Source: Authors' own work

Table IV

Discriminant validity (HTMT ratio)

	ITC	VPI	Multihoming	Multihoming x ITC
VPI	0.742			
Multihoming	0.449	0.636		
Multihoming x ITC	0.501	0.148	0.042	
Financial performance	0.543	0.636	0.494	0.070

Note(s): HTMT ratio for similar constructs should be less than 0.9 and less than 0.85 otherwise (Henseler *et al.*, 2015).

Source: Authors' own work

Table V

Indirect and total effects on financial performance

Effects	Coefficient	95% CI
Indirect effects		
ITC → VPI → financial performance	0.365	0.156, 0.598
Multihoming → VPI → financial performance	-0.012	-0.112, 0.052
Multihoming x ITC → VPI → financial performance	0.105	0.018, 0.235
Total effects		
ITC → financial performance	0.500	0.333, 0.710
VPI → financial performance	0.457	0.197, 0.686
Multihoming → financial performance	-0.012	-0.112, 0.052
Multihoming x ITC → financial performance	0.105	0.018, 0.235

Note(s): 95% CI derived using 10,000 bootstrapped samples

Source: Authors' own work

Table VI

Results of hypothesis testing

Hypothesis		
H1	VPI directly and positively affects financial performance.	Supported
H2	VPI mediates the relationship between IT capability and financial performance.	Supported
H3	The more platforms an SME operates on, the stronger the effect of IT capability on VPI.	Supported

Source: Authors' own work

Appendix A Supplementary Material

Table AI

Survey items / latent variable indicators

Item	Item description	Source
Value proposition innovation (7-point Likert)		
VPI1	We regularly offer products or services targeting new, unmet customer needs.	(Clauss, 2017)
VPI2	Our products or services are very innovative in relation to our competitors.	
VPI3	We regularly solve customer needs that are not solved by competitors.	
VPI4	We regularly take opportunities that arise in new or growing markets.	
VPI5	We regularly address new, unserved market segments.	
VPI6	We are constantly seeking new customer segments and markets for our products and services.	
VPI7	We regularly utilize new distribution channels for our products and services.	
VPI8	We constantly change our channels to improve efficiency of our channel functions.	
VPI9	We consistently change our portfolio of distribution channels.	
VPI10	We try to increase customer retention by new pre-sale, in-sale, and after-sale service offerings.	
VPI11	We emphasize innovative/modern actions to increase customer retention (e.g., CRM).	
VPI12	We take many actions in order to strengthen customer relationships.	
IT capability (7-point Likert)		
ITC1	We usually collect, store, and share data of customers by virtue of MIS (e.g., CRM).	(Park *et al.,* 2017; Tallon and Pinsonneault, 2011)
ITC2	We usually collect, store, share and analyze data of customers by virtue of BI system (e.g., Qianniu).	
ITC3	We usually collect, store, and share data of SCM by virtue of MIS (e.g., ERP).	
ITC4	We usually collect, store, share and analyze data of SCM by virtue of BI system (e.g., Qianniu).	
ITC5	We usually collect, store, and share data of service providing by virtue of MIS (e.g., ERP).	
ITC6	We usually collect, store, share and analyze data of service providing by virtue of BI system (e.g., Qianniu).	
ITC7	We usually collect, store, and share data of interaction with competitors by virtue of MIS (e.g., ERP).	
ITC8	We usually collect, store, share and analyze data of interaction with competitors by virtue of BI system (e.g., Qianniu).	
Financial performance (5-point Likert)		
PER1	Compared to the average level in our industry, our profitability is	(Jaworski and Kohli, 1993)
PER2	Compared to the average level in our industry, our growth in sales is	
PER3	Compared to the average level in our industry, our market share is	
PER4	Compared to the average level in our industry, customers' repurchase rate is	
Multihoming (Numeric)		
HOMING	You operate businesses on (X number of) e-commerce platforms like Taobao, Jingdong, etc.	

Note(s): The 7-point Likert scale for value proposition innovation and IT capability uses anchors 1 (*strongly disagree*), 2 (*disagree*), 3 (*somewhat disagree*), 4 (*neither agree nor disagree*), 5 (*somewhat agree*), 6 (*agree*), and 7 (*strongly agree*). The 5-point Likert scale for financial performance uses anchors 1 (*much lower*), 2 (*somewhat lower*), 3 (*about the same*), 4 (*somewhat higher*), and 5 (*much higher*).

Source: Authors' own work

Table AII

Factor loadings and cross loadings

Indicator	IT capability	Value proposition innovation	Multihoming	Financial performance
ITC1	0.870	0.635	0.391	0.498
ITC2	0.767	0.589	0.390	0.396
ITC3	0.914	0.652	0.401	0.544
ITC4	0.801	0.596	0.389	0.441
ITC5	0.872	0.652	0.405	0.475
ITC6	0.812	0.615	0.369	0.431
ITC7	0.805	0.611	0.330	0.426
ITC8	0.636	0.487	0.248	0.331
VPI1	0.409	0.559	0.308	0.311
VPI2	0.590	0.802	0.350	0.520
VPI3	0.568	0.819	0.363	0.524
VPI4	0.546	0.756	0.305	0.515
VPI5	0.607	0.802	0.343	0.499
VPI6	0.624	0.841	0.391	0.538
VPI7	0.617	0.789	0.360	0.503
VPI8	0.592	0.772	0.329	0.499
VPI9	0.570	0.744	0.349	0.480
VPI10	0.541	0.726	0.282	0.491
VPI11	0.550	0.764	0.252	0.479
VPI12	0.574	0.731	0.249	0.423
Multihoming	0.452	0.425	1.000	0.494
PER1	0.513	0.548	0.427	0.827
PER3	0.423	0.520	0.391	0.833
PER4	0.483	0.536	0.444	0.871
PER6	0.341	0.447	0.327	0.691

Source: Authors' own work

Table AIII

VIF Values

Construct	Value proposition innovation	Financial performance
IT capability	2.411	2.492
Value proposition innovation		2.923
Multihoming	1.308	1.337
Multihoming x ITC	1.910	

Source: Authors' own work

Appendix B: Scale Adaptation Information

We adapted existing scales from the sources shown in Table AI and described in the Data Collection and Sample sections. We adapted the questions' wording while maintaining the measures' scales. The content and face validity of the items were evaluated with inputs from e-commerce experts and vendors interviewed. For these adapted items, the measurement model was validated using exploratory factor analysis (EFA) followed by confirmatory factor analysis (CFA). While this was accomplished using covariance-based SEM (CB-SEM) techniques, all the measurement model validity assessments needed for the primary analysis using PLS-SEM were completed as part of the main analysis detailed in the body of the paper. Furthermore, the combination of non-normality of the data, sample size, and complexity of the model (moderated mediation) indicated the use of PLS-SEM instead of CB-SEM for the primary analysis.

EFA

First, an EFA was performed to understand and confirm the underlying factor structure of our data. Using an eigenvalue of 1 as the cutoff for our EFA revealed the three-factor solution shown in Tables BI and BII. Notably, the items adapted for IT capability, VPI, and PER all loaded into distinct factors.

Table BI:

EFA varimax rotated factor loadings of adapted measures

Variable	Factor1	Factor2	Factor3
ITC1		0.718	
ITC2		0.778	
ITC3		0.741	
ITC4		0.832	
ITC5		0.744	
ITC6		0.849	
ITC7		0.679	
ITC8		0.772	
VPI1	0.66		
VPI2	0.728		
VPI3	0.729		
VPI4	0.69		
VPI5	0.752		
VPI6	0.702		
VPI7	0.737		
VPI8	0.569		
VPI9	0.714		
VPI10	0.661		
VPI11	0.77		
VPI12	0.704		
PER1			0.674
PER2			0.851
PER3			0.883
PER4			0.773

Note(s): Blanks represent abs(loading) < 0.5

Source: Authors' own work

Table BII:

EFA correlation solution of adapted measures

Factor	Variance	Difference	Proportion	Cumulative
Factor1	6.925	1.082	0.289	0.289
Factor2	5.844	2.490	0.244	0.532
Factor3	3.354		0.140	0.672

Source: Authors' own work

Table BI shows that the rotated factor loadings for our adapted items grouped consistently, and most were above the recommended threshold of (0.707), indicating adequate communality (Hair

et al., 2019a). In those cases where an item loaded below the threshold was retained, despite its empirical shortcomings, if the item had a loading above 0.50 (Hair *et al.*, 2019a; Kline, 2016), a uniqueness below 0.50, and it had face and content validity. Further, BII shows that the three-factor solution used accounted for more variance (67.2%) than the recommended 50% threshold (Hair *et al.*, 2019a; MacCallum *et al.*, 1999).

Reliability and Convergent Validity

We assessed internal consistency reliability via Cronbach's alpha and convergent validity via average variance extracted (AVE). Table BIII shows the results of these assessments. All the alphas were above the recommended threshold of 0.7 and the AVEs were above 0.50, providing reasonable evidence of adequate internal consistency reliability and convergent validity (Hair *et al.*, 2019a; Kline, 2016).

Table BIII

Reliability and validity of adapted measures

Construct	Cronbach's α	AVE
IT capability	0.940	0.666
Value proposition innovation	0.942	0.581
Financial performance	0.890	0.670

Source: Authors' own work

CFA Model and Discriminant Validity

Next, we analyzed a CFA model to assess discriminant validity and how well our adapted measures "fit reality" (Hair *et al.*, 2019a, p. 680). However, one obstacle for CB-SEM not present in PLS-SEM is the requirement for univariate, bivariate, and multivariate normality (Kline, 2016) of the endogenous variables. In our CFA model, all indicators are endogenous. Only two indicators for financial performance (PER3 and PER4) were univariate normal[4]. All bi-variate combinations of indicators failed normality testing (Doornik-Hansen test; p-values from

[4] Tested using the procedure per D'Agostino et al. (1990). Shapiro–Wilk tests produced quantitatively identical results.

0.0104 to < 0.001). Likewise, all tests performed for multivariate normality failed (Marida mSkewness, Marida mKurtosis, Henze-Kirkler, and Noornik-Hansen tests; p-values all < 0.001). For highly non-normal data, the Satorra-Bentler corrections provide a more accurate and less biased estimate of test statistics (Chou *et al.*, 1991; Curran *et al.*, 1996; Satorra and Bentler, 1994); thus, we used Satorra-Bentler corrections to assess our CFA model. The results are shown in Tables BIV and BV. Table BIV shows that all loadings were statistically significant and above the accepted threshold of 0.7 (Hair *et al.*, 2019a; Kline, 2016). As well, the CFA model had satisfactory fit ($\chi^2_{(249)} = 386.6$ $\chi^2/df = 1.55$, *RMSEA* = 0.052, *SRMR* = 0.057, *CFI* = 0.937, and *TLI* = 0.931). Table BV shows that each construct's AVE exceeds its pairwise squared correlations, indicating adequate discriminant validity (Fornell and Larcker, 1981). With these results, we concluded that our adapted measures were valid for the purpose and context of our study.

Table BIV

CFA results for adapted measures

Construct	Indicator	Standardized coefficient	Satorra-Bentler standard error	*Z*	*p*	95% CI
IT capability	ITC1	0.813	0.031	26.584	<0.001	0.753, 0.873
	ITC2	0.810	0.031	26.474	<0.001	0.750, 0.870
	ITC3	0.835	0.027	30.740	<0.001	0.782, 0.889
	ITC4	0.874	0.029	30.226	<0.001	0.817, 0.931
	ITC5	0.836	0.040	20.764	<0.001	0.758, 0.915
	ITC6	0.899	0.022	40.989	<0.001	0.856, 0.942
	ITC7	0.719	0.047	15.370	<0.001	0.627, 0.810
	ITC8	0.722	0.055	13.110	<0.001	0.614, 0.830
Value proposition innovation	VPI1	0.593	0.047	12.665	<0.001	0.501, 0.685
	VPI2	0.802	0.022	36.718	<0.001	0.759, 0.845
	VPI3	0.785	0.029	27.290	<0.001	0.729, 0.841
	VPI4	0.765	0.031	24.870	<0.001	0.705, 0.825
	VPI5	0.828	0.019	44.575	<0.001	0.791, 0.864
	VPI6	0.813	0.023	35.296	<0.001	0.768, 0.858
	VPI7	0.821	0.023	35.999	<0.001	0.776, 0.866
	VPI8	0.705	0.034	20.780	<0.001	0.638, 0.771
	VPI9	0.769	0.036	21.219	<0.001	0.698, 0.840
	VPI10	0.710	0.036	19.971	<0.001	0.640, 0.780
	VPI11	0.794	0.029	27.219	<0.001	0.737, 0.851
	VPI12	0.734	0.034	21.710	<0.001	0.668, 0.800
Financial performance	PER1	0.701	0.038	18.590	<0.001	0.627, 0.775
	PER2	0.879	0.022	40.091	<0.001	0.836, 0.922
	PER3	0.952	0.016	57.903	<0.001	0.920, 0.985
	PER4	0.715	0.053	13.417	<0.001	0.611, 0.819

Source: Authors' own work

Table BV:

Construct correlations and average variance extracted

	(1)	(2)	(3)
(1) IT capability	0.666		
(2) Value proposition innovation	0.532	0.581	
(3) Financial performance	0.254	0.344	0.670

Note(s): AVE is on, and squared correlation is off the diagonal.

Source: Authors' own work