Multi-homing in B2B services: a psychological perspective

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Abstract

Purpose – Extant literature on business-to-business (B2B) has largely ignored studying multi-homing through a psychological lens. This paper aims to outline the results of three constituent studies, which were designed to reveal potential differences in multi-homers' versus single-homers' loyalty behaviors in a B2B and supply chain management (SCM) setting; identify factors that differentiate single-homers and multi-homers in these settings; and examine the relevance and effect of perceived risk on multi-homing behaviors.

Design/methodology/approach – In Studies 1 and 2, the authors used a questionnaire-based survey to capture the perceptions of 503 and 458 SCM experts, respectively. They then deployed AMOS v.21 to perform structural equation modeling. In Study 3, the authors used a mixed-methods approach to interview 18 SCM experts and then applied these insights to a survey with 242 SCM experts.

Findings – Study 1 reveals that multi-homers' loyalty toward their preferred SP has a weaker effect on willingness to pay premium prices and share-of-wallet than single-homers' loyalty. Study 2 establishes that several attitudinal factors distinguish multi-homers from single-homers in a loyalty framework. Study 3 concludes that perceived risk dimensions promote multi-homing intention, which in turn promotes multi-homing behavior.

Originality/value – Through empirical investigation, the present research succeeds in establishing that multi-homing is a concern for SPs, deciphering the attitudinal factors that distinguish multi-homers and single-homers in a loyalty framework, and confirming the influence of perceived risk dimensions on multi-homing. Thus, the study has several theoretical and practical implications for B2B services in emerging economies.

Keywords Multi-homing, B2B services, Multi-brand loyalty, B2B loyalty

Paper type Research paper

1. Introduction

The risk and uncertainty of COVID-19 have had indelible effects on customer behavior (Donthu and Gustafsson, 2020; Naeem, 2021), which have only been compounded with the emergence of new virus strains and questions regarding the efficacy of existing vaccines (Kirby, 2021). In light of this uncertainty, recent studies have argued that old frameworks for understanding buying behavior in both business-to-business (B2B) and business-to-consumer (B2C) contexts may no longer be valid, requiring new studies and updated models (Mele, 2020; Oehmen *et al.*, 2020; Sheth, 2020). This climate of renewal presents opportunities not only for new frameworks on buying behavior but also for new models of how businesses' responses to such behavior (Sheth, 2020). Altogether, these changes are pushing scholarly interest toward this subject during this risk-laden times (Baliga *et al.*, 2021; Shabani-Naeeni and Ghasemy Yaghin, 2021). The aforementioned becomes more relevant for emerging markets as customers in these markets often perceive higher risk than in developed economies due to the asymmetry of information, inadequate infrastructure and fragmented nature of the market (Sinha and Sheth, 2018).

Extant research on loyalty suggests that customers use different risk-reduction strategies when they are exposed to risks and uncertainty. Multi-brand loyalty (MBL) is one such strategy, wherein a customer commits themselves to more than one brand and buys consistently from these brands despite competition or influence from other brands (Jacoby, 1971; Arifine *et al.*, 2019). Similarly, in B2B and supply chain management (SCM) settings, common risk reduction strategies include multi-homing and multi-sourcing, respectively. In these cases, multi-homing or multi-sourcing manifests as customers splitting their loyalty between multiple service providers (SPs) to avoid or reduce risk (Rochet and Tirole, 2003; Vakeel *et al.*, 2020). Customers engage in multi-homing to improve service quality, reduce costs, reduce time to market and increase operational flexibility (Aubert *et al.*, 2016; Mehrjerdi and Shafiee, 2021). However, the present stream of research is yet to empirically examine whether there are differences in loyalty outcomes between single-homers and multi-homers. Additionally, there is a dearth of academic work highlighting what factors separate multi-homers from single-homers while predicting their loyalty toward a SP in the B2B domain. Established research on emerging markets has emphasized the need to evaluate the psychological mechanisms

Conflict of interest: The authors declare that to the best of their knowledge, there is no conflict of interest in the present work.

underpinning industrial buying behavior and its outcomes separately for emerging markets (Dasanayaka *et al.*, 2020; Sheth, 2020; Rakshit *et al.*, 2021). Based on the above the following are the specific research objectives of this study:

RO1. To examine whether there are differences in loyalty outcomes between single-homers and multi-homers.

RO2. To identify the psychological factors that distinguish single-homers and multi-homers in a loyalty framework by empirically examining whether these parties respond differently to factors that typically predict loyalty.

RO3. To explore non-attitudinal or situational factors affecting multi-homing and examine the relevance and effect of perceived risk on multi-homing.

Three interconnected, sequential studies are being planned to attain the above research objectives. To that end, we intend to begin with a quantitative study (Study 1) to substantiate *RO1* by examining the effects of loyalty on single-and multi-homing customers. Only if Study 1 establishes that multi-homers and single-homers behave differently when the consequences of their behavioral loyalty toward their preferred SP are examined (thereby demonstrating that multi-homing is a concern for an SP), do we believe it is critical to investigate the psychological factors that motivate multi-homers' versus single-homers' loyalty to their SPs.

Study 2 (to bolster *RO2*) uses a quantitative follow-up to Study 1 and empirically examines the psychological factors affecting the loyalty of multi-homers versus single-homers to their SPs. We will conduct Study 3 only after Study 2 establishes empirical support for Dick and Basu's (1994), Wolter *et al.'s* (2017), Costa Filho *et al.'s* (2020) and Ngo *et al.'s* (2021) claims that single-homers' commitment has a greater effect on behavioral loyalty than multi-homers' commitment, and it is critical to examine non-attitudinal or situational factors affecting multi-homing. Study 3 (to provide support for *RO3*) qualitatively examines the non-attitudinal or situational factors affecting multi-homing, followed by a quantitative examination of their effect on multi-homing behavior. We describe these studies in detail in the following sections before discussing their theoretical and managerial implications, limitations, and potential future research directions that they enable.

In doing so, the novelty of the present study lies in:

- establishing that multi-homing is a concern for SPs since multi-homing can negatively impact SPs financially in terms of share-of-wallet and willingness to pay premium price;
- examining the attitudinal factors that distinguish multi-homers and single-homers in a loyalty framework where significant differences are found between single-homers and multi-homers with respect to the associations between product value and satisfaction, satisfaction and commitment, trust and commitment and commitment and behavioral loyalty; and
- identifying non-attitudinal or situational factors responsible for multi-homing and confirming the

influence of perceived risk on multi-homing intentions and behavior.

This is probably the first study that examines multi-homing through a psychological lens from an emerging market perspective under an uncertainty-laden scenario. In addition to several theoretical and managerial implications for B2B, the findings of this study also present several avenues for future research.

2. Theoretical background

Multi-homing is defined in the information systems literature as the activity of joining a set of multiple competing platforms to improve server resilience, dependability and performance (Cennamo *et al.*, 2018; Wan *et al.*, 2020). From a business perspective, multi-homing refers to a situation that occurs when customers are members of different networks or service providers for a similar service (Sandulli *et al.*, 2014). According to Goode (2020), multi-homing is a phenomenon enabled by service market conditions that allow a service user to access and use the same service from multiple service providers concurrently. Aside from cost advantages, multi-homing allows customers to aggregate diverse features, operational flexibility, performance and commitment offered by different individual distribution networks via multiple platforms or distribution networks (Mital and Sarkar, 2011; Liu *et al.*, 2012; Aubert *et al.*, 2016). Anyone, whether a buyer or a seller, can multi-home, which means that a buyer can buy from a variety of platforms and a seller can offer their services to a variety of platforms (Armstrong and Wright, 2007; Landsman and Stremersch, 2011).

Multi-homing is analogous to concepts such as MBL (Jacoby, 1971; Felix, 2014; Arifine *et al.*, 2019), polygamous loyalty (Dowling and Uncles, 1997; Tan *et al.*, 2021), dual loyalty (Cunningham, 1956), divided loyalty (Sharp and Sharp, 1997; Yim and Kannan, 1999) and horizontal loyalty (McKercher *et al.*, 2012; Almeida-Santana and Moreno-Gil, 2018; Manchanda and Deb, 2021) in consumer marketing studies where consumers buy and are loyal to a set of multiple brands or destinations in a given category. Consumers exhibit this behavior for a variety of reasons, including mood congruence, identity enhancement, unavailability risk reduction, differential use-cases, a desire for variety and market competition. Simultaneously, multi-homing can be considered synonymous with the supply chain management's (SCM's) concept of multi-sourcing, which refers to the practice of sourcing services or goods from two or more suppliers to avoid supply uncertainty (uncertainty induced by yield uncertainty, unreliable product quality, supplier's disaster or bankruptcy), price risks and stock risks (Spekman and Ford, 1977; Wu *et al.*, 2019; Hebisch *et al.*, 2022).

While the aforementioned concepts of MBL and multi-sourcing have received considerable scholarly attention over the last five to seven decades [see, for example, Cunningham (1956), Jacoby (1971), Spekman and Ford (1977)], multi-homing is a relatively recent development; such work largely examined the aforementioned concepts from a non-technological perspective, in contrast to multi-homing, which is a technology-oriented phenomenon (Armstrong, 2006). As evident from the work of Armstrong (2006) and Armstrong and Wright (2007),

multi-homing is becoming more prevalent in firm-related studies examining contexts such as network connectivity, server connectivit, and internet connectivity (Landsman and Stremersch, 2011; Cennamo et al., 2018). With the increasing adoption of technology-based services by consumers, this term is gaining traction in consumer marketing studies as well (Goode, 2020).

To identify relevant research studies suitable for multi-homing, a clear protocol was developed that included the deployment of an explicit method for article selection, as well as an exploration of relevant sources such as EBSCO, Taylor and Francis, Scopus, JSTOR, Science Direct, and Emerald using "full-text" and "English" as limiting filters for the search keywords (Bharti et al., 2015). The following keywords were used in the search: "multi-homing", "multi-sourcing", "multi-brand loyalty", "dual loyalty", "divided loyalty", "polygamous loyalty" and "horizontal loyalty". To avoid duplication and repetition, we excluded research work cited in reports and publications, textbooks, working papers and postgraduate and doctoral dissertations (Ngai, 2005). The results of this research, which originated in the aforementioned directories, resulted in full-text articles on MBL (64). All findings were recorded without regard to time constraints, as there are few studies on multi-homing and MBL space (Arifine et al., 2019; Goode, 2020). To begin with, the abstracts of each of these articles were read to determine their relevance to the current study. Another criterion for inclusion was that the journal articles be classified as A*/A/B in the 2019 ABDC category list
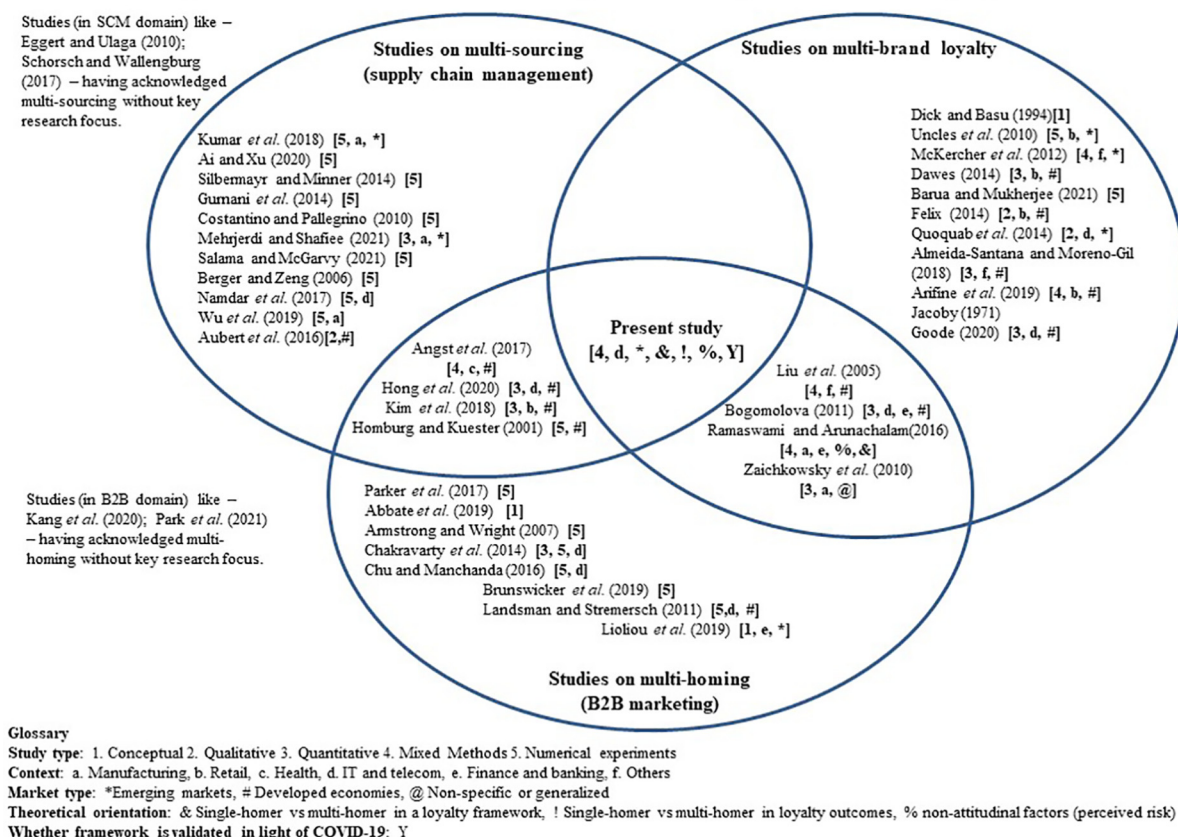
(Baliga et al., 2021). Only 42 articles were identified as potentially relevant to the study.

Following that, a comprehensive list of studies is compiled based on each article's title, year of publication, topic, focus area, research orientation, market type (emerging/developed), context (industry type), customer type (B2B/B2C/supply chain) and whether buying behavior is studied in conjunction with its psychological mechanism. This list is largely consistent with the approach taken by Mclean et al. (2020) and Cachero-Martínez and Vázquez-Casielles (2021). The classification of emerging and developed economies is based on the World Bank and International Monetary Fund classifications as published on their respective websites (IMF, 2020; World Bank, 2020).

Figure 1 (also inspired from the work of Arifine et al., 2019) summarizes current research on multi-homing (in B2B contexts), MBL (in B2C contexts) and multi-sourcing (in SCM contexts), as well as our paper's position within this context.

The consumer marketing, B2B marketing, and SCM literatures all contain a diverse range of studies on MBL, multi-homing and multi-sourcing in a variety of contexts and with a variety of methodologies and theoretical orientations. For instance, while discussing different contexts, Landsman and Stremersch (2011) investigated sellers' multi-homing decisions in the gaming domain, though they excluded buyers' decisions from the study. Similarly, Lioliou et al. (2019) explained vendors' opportunistic multi-homing behaviors in the

Figure 1 Current research on multi-homing, multi-sourcing and multi-brand loyalty

Glossary
Study type: 1. Conceptual 2. Qualitative 3. Quantitative 4. Mixed Methods 5. Numerical experiments
Context: a. Manufacturing, b. Retail, c. Health, d. IT and telecom, e. Finance and banking, f. Others
Market type: *Emerging markets, # Developed economies, @ Non-specific or generalized
Theoretical orientation: & Single-homer vs multi-homer in a loyalty framework, ! Single-homer vs multi-homer in loyalty outcomes, % non-attitudinal factors (perceived risk)
Whether framework is validated in light of COVID-19: Y

context of financial services, and Liu *et al.* (2005) examined multi-homing and MBL in the financial staffing service industry. Other studies, like those by Eggert and Ulaga (2010) and Schorsh *et al.* (2017), have examined multi-sourcing behaviors in manufacturing and related contexts, even though multi-sourcing or multi-homing was not their primary focus. Homburg and Kuester (2001), Zaichkowsky *et al.* (2010), Bogomolova (2011) and Ramaswami and Arunachalam (2016) have also examined B2B buying behavior in manufacturing and service-related contexts, and Aubert *et al.* (2016) discussed the various strategies that multi-sourcing customers apply in a retail context. More distantly, *Angst et al.* (2017) examined multi-sourcing decisions in hospitals, and Hong *et al.* (2020) addressed such decisions in a ride-hailing context from a supplier perspective.

Additionally, there are also notable trends in the methodologies used in previous research. For example, though Aubert *et al.* (2016) and Lioliou *et al.* (2019) used a case-study approach for their multi-sourcing and multi-homing studies, respectively, many studies opted for numerical experiments. Such studies include Armstrong and Wright's (2007) work on multi-homing and works by Berger and Zeng (2006), Costantino and Pellegrino (2010), Gurnani *et al.* (2014), Silbermayr and Minner (2014), Namdar *et al.* (2018), Kumar *et al.* (2018), Wu *et al.* (2019), Ai and Xu (2020), Mehrjerdi and Shafiee (2021) and Salama and McGarvey (2021) on multi-sourcing. Only Ramaswami and Arunachalam's (2016) study used a mixed-methods approach.

While discussing theoretical orientations and objectives, multi-homing studies like those of Chakravarty *et al.* (2014), Chu and Manchanda (2016), Parker *et al.* (2016), Brunswicker *et al.* (2019) and Abbate *et al.* (2019) sought to devise new strategies to counteract customer defection due to multi-homing behaviors. This action-oriented emphasis caused them to overlook the differences between multi-homing and single-homing customers. Adjacently, *Angst et al.* (2017) examined the organizational mechanisms influencing hospitals' single-versus multi-sourcing platform procurement strategies, and Hong *et al.* (2020) investigated the varying preferences of single-homers versus multi-homers in ride-hailing, though they did not capture the perceptions and related psychological mechanisms behind their divergent behavior. Studies like Lussier and Hall (2018), Karampela *et al.* (2020) and Balci (2021) have emphasized the importance of studying customer perceptions and psychological mechanisms when it comes to B2B relationships.

Homburg and Kuester (2001), Liu *et al.* (2005), Zaichkowsky *et al.* (2010), Bogomolova (2011), Gurnani *et al.* (2014) and Ramaswami and Arunachalam (2016) are works examining the psychological front in the B2B domain. Based upon transaction cost theory, Homburg and Kuester (2001) found that the number of suppliers is negatively driven by the complexity of the purchasing situation and is positively driven by financial considerations. Liu *et al.* (2005) examined the psychological mechanisms underlying multi-sourcing buyers' decision to divide their share-of-wallet among multiple suppliers, concluding that customer value, satisfaction and perceived switching costs all contribute to share-of-wallet repurchase. The study, however, did not specify what distinguishes single- and multi-homers. Zaichkowsky *et al.*

(2010) based their argument on brand equity theory and provided empirical evidence that multi-sourcing customers view after-sales service and technical support as discriminating factors in the context of core industries, alongside price, on-time delivery and quality. Gurnani *et al.* (2014) discovered that customers have a systematic tendency to diversify between two sources for their respective orders, using bounded rationality as a theoretical foundation. Arifine *et al.* (2019) and Goode (2020) both emphasized the importance of examining the factors that distinguish multi-homers from single-homers (or MBL users from single-brand users) when examining the concept of multi-homing/MBL. Homburg and Kuester (2001), Zaichkowsky *et al.* (2010), Bogomolova (2011) and Gurnani *et al.* (2014) did examine the distinctions between single-homers and multi-homers from a psychological perspective, though they did not identify the psychological mechanisms underlying loyalty to SPs or suppliers. Additionally, Ramaswami and Arunachalam (2016) used consumer value theory to demonstrate that divided loyal customers (located in the USA and Canada) perceive a significant difference in value dimensions (process value, product value, relationship value and satisfaction) between the one or single focal firm (manufacturing-and service-firm) and inter-type competitors (i.e. local bank).

Furthermore, no significant difference in such value dimensions was observed between the focal firm and intra-type competitors (other manufacturing-and service-firms producing comparable equipment and providing comparable services), which contradicts prior research on hedging and supply-chain uncertainties (Spekman and Ford, 1977; Liu *et al.*, 2005; Gurnani *et al.*, 2014; Wu *et al.*, 2019; Hebisch *et al.*, 2022). Several limitations exist in this study that could be addressed in future research, for example, by replicating the study in different countries to assess generalizability or by examining loyalty divided between more than two firms. We argue that their study could be strengthened by including behavioral variables such as loyalty and non-attribute factors or situations (Spekman and Ford, 1977; Dick and Basu, 1994; Wu *et al.*, 2019; Costa Filho *et al.*, 2020; Ngo *et al.*, 2021; Hebisch *et al.*, 2022).

Additionally, MBL research indicates that mitigating the risk of unavailability, competing offers, seeking variety and flexibility, maintaining mood congruity, and the desire to enhance one's identity can all contribute to MBL behavior (Felix, 2014; Quoquab *et al.*, 2014; Arifine *et al.*, 2019). However, there is a dearth of empirical evidence regarding the effect of the aforementioned factors on MBL behavior in the B2C domain in these studies. Similarly, almost no empirical research has been conducted in B2C on the effects of MBL or multi-homing. Additionally, the hypotheses of high attitudinal loyalty and low behavioral loyalty among multi-homers must be validated (Dick and Basu, 1994; Costa Filho *et al.*, 2020). Studies like Arifine *et al.* (2019) and Goode (2020) both emphasized the critical nature of empirical examination when studying MBL or multi-homing. In addition to the foregoing, Gerrard and Cunningham (1999) discovered no significant difference in the psychographic factors affecting multi-and single-bank users in a developed economy; this finding contradicts the insights from Arifine *et al.* (2019) and Goode (2020) in the FMCG and cloud computing domains, respectively, from a developed economy perspective in the

consumer marketing domain. This demonstrates the critical nature of contextual analysis when studying multi-homing, let alone emerging markets.

Contingency and crisis situations, such as the COVID-19 pandemic, also justify a thorough examination of perceived risk (Rapaccini *et al.*, 2020; Sharma *et al.*, 2020) and its effect on multi-homing behaviors, particularly in emerging economies. Almost no research has been conducted to date on how multi-homing may be a concern for SPs in these settings. Though Namdar *et al.* (2018) and Salama and McGarvey (2021) examined the effect of perceived risk on single-versus multi-sourcing strategies, they did so from the perspective of developed economies. We have not come across much empirical research examining multi-homing, MBL, or multi-sourcing buying behavior in emerging economies, as extant research in this area has largely taken place in developed economies. Because emerging economies lack regulatory frameworks, expertise, and resources, companies in these economies operate under different kinds of challenges than their "first world" counterparts. Additionally, customers in these markets often perceive higher risk than in developed economies due to the asymmetry of information, inadequate infrastructure, and fragmented nature of the market (Sinha and Sheth, 2018). As a result, insights from developed economies may not always be applicable to emerging economies (Sheth and Sinha, 2015). Felix (2014) and Arifine *et al.* (2019) both emphasized the need to study MBL from the perspective of emerging markets.

In addition, a few studies have looked at multi-homing and multi-sourcing in telecom and cloud services in a B2B context, as shown in Figure 1. Because telecom and other online services are significantly more separable than traditional (inseparable) services, which can be solicited and consumed at the same time or in the same place, such a study could provide valuable insight. As a result, customers of telecom and cloud services can use multiple SPs at the same time (Goode, 2020), allowing for multi-homing.

Most importantly, there are few research studies in the B2B, consumer marketing, or SCM literature concerning buying behavior that address whether multi-homing has a negative impact on SPs. If customer multi-homing is a source of concern for SPs, it is necessary to investigate what differentiates multi-homers from single-homers in terms of antecedents to behavioral loyalty toward their SP. If empirical evidence shows that single-homers' commitment has a greater impact on behavioral loyalty to SP than multi-homers' commitment, non-attitudinal or situational factors affecting multi-homing [as claimed by Dick and Basu (1994), Costa Filho *et al.* (2020); and Ngo *et al.* (2021) in consumer marketing] must be investigated. To address the aforementioned issues, a series of interconnected sequential studies is required. However, such studies appear to be lacking in the current multi-homing literature.

As a result, previous strands of relevant literature have typically focused on one or two of the topics under consideration; none, to our knowledge, has investigated all of the concepts together to arrive at an integrative theoretical framework or model that can deepen insights into what differentiates multi-homers from single-homers, which is crucial for SPs and loyalty literature.

Given the scope of the aforementioned literature and the research objectives, we focus on telecom and cloud services [in line with Quoquab *et al.*'s (2014) work on MBL and Goode's (2020) work on multi-homing in the B2C domain]; furthermore, we focus on the market in India to examine these dynamics in an emerging economy by studying the perception of multi-homing customers. Fang (2019) and Mclean *et al.* (2020) cautioned against indiscriminate replication of conclusions without a thorough examination of the context, and recommended that a specific technology-based context for loyalty be investigated.

The historical distinctions between B2B and B2C marketing are becoming blurred, according to modern B2B scholars (Baack *et al.*, 2016; Casidy *et al.*, 2018). Recent B2B marketing research has established that both cognition and affect can influence behavioral intentions in buying contexts, similar to B2C research (Steward *et al.*, 2019). A wide range of consumer behavior-related concepts, such as relationship quality, prestige, brand identification and engagement, have recently been investigated in a B2B context (Casidy and Nyadzayo, 2019; Nyadzayo *et al.*, 2020). As a result, the current study frames its arguments using insights from the consumer marketing domain.

3. Study 1

Recently, loyalty research has started to focus on the effects of loyalty, otherwise known as "loyalty outcomes." Scholars concur that such outcomes include word of mouth (i.e. any positive communication by SP's customers regarding its services with an intention to recommend (Mai and Liao, 2021), willingness to pay premium prices [i.e. the customer's intention to buy the services from their preferred SP even at higher prices than its competitors (Mohan *et al.*, 2021)] and share-of-wallet [i.e. the share of the customer's business which a particular SP gets in a particular service category (Kim and Lee, 2010)], all of which benefit the given SP (Evanschitzky *et al.*, 2012; Giovanis and Athanasopoulou, 2018; Shaikh *et al.*, 2018). Empirical evidence in B2B literature suggests that customers' commitment to one SP (single-homing) strongly affects:

- share-of-wallet (Blut *et al.*, 2016);
- word of mouth (Anaza and Rutherford, 2014); and
- willingness to pay premium prices (Blut *et al.*, 2016) for the given SP.

Contrastingly, we can deduce from the MBL literature that multi-homers' commitment to multiple brands weakly affects:

- share-of-wallet (as they divide their expenditure among several providers in the same category) (Liu *et al.*, 2005; Felix, 2014; Arifine *et al.*, 2019);
- willingness to pay premium prices (because these customers try to derive maximum benefit from price-led market competition) (Quoquab *et al.*, 2014); and
- word of mouth (because these customers are loyal to multiple SPs) (Arifine *et al.*, 2019).

Hence, we propose the following hypotheses:

3.1 Hypotheses

H1. For both single-homers and multi-homers, loyalty toward an SP positively affects word of mouth for that SP.

H1a. Single-homers' loyalty has a stronger (positive) effect on word of mouth than multi-homers' loyalty.

H2. For both single-homers and multi-homers, loyalty toward an SP positively affects willingness to pay premium prices for that SP.

H2a. Single-homers' loyalty has a stronger (positive) effect on their willingness to pay premium prices than multi-homers' loyalty.

H3. For both single-homers and multi-homers, loyalty toward an SP positively affects the share-of-wallet for that SP.

H3a. Single-homers' loyalty has a stronger (positive) effect on share-of-wallet than multi-homers' loyalty.

The conceptual framework of Study 1 is illustrated in Figure 2.

3.2 Method

3.2.1 Sample

It was decided to examine only small, medium and large firms [as defined by the Government of India's Ministry of micro, small and medium enterprises (MSME, 2020)] with a minimum annual revenue of INR 10 crore and an employee count of 100 or more. To identify relevant respondents, we decided to include participants who are managers or above, with at least five years of experience in SCM, from firms that met the aforementioned criteria (Ju and Ha, 2019). Due to the difficulty of making physical contact with prospective respondents due to COVID-19-led lockdowns and other restrictions, it was decided to contact them online via a Google Survey-based questionnaire (in line with longitudinal studies such as McLean (2018), Gong *et al.* (2019), and Ju and Ha (2019) that used an online questionnaire) with screening questions (in English) to identify single- and multi-homers, adapted from McKercher *et al.* (2012), Quoquab *et al.* (2014), Almeida-Santana and Moreno-Gil (2018) and Arifine *et al.* (2019). The screening questions were as follows:

- Before the onset of COVID-19, did your organization use a single SP in any of the following service categories (i.e. telecom services or cloud services) (Yes/No)?.

Figure 2 Conceptual framework (Study 1)

- If yes, please specify the service category for which your organization used a single SP: (a) telecom services, (b) cloud services.
- If your organization previously used a single telecom or cloud SP before the onset of COVID-19, has it since started to use two or more SPs (Yes/No)?
- Please specify the service category for which your organization has started to use two or more SPs in the past six months (i.e. post the onset of COVID-19): (a) telecom services, (b) cloud services.

Following this set of screening questions, we invited the respondents to name their most preferred SP and, in line with the work of Chang and Liu (2009), to answer the following two questions:

1. I think this SP is superior to other SP(s) (Yes/No).
2. When considering a purchase in this category, I consider this SP first (Yes/No).

Additionally, the questionnaire asked about their profile, including their job title, employer, years of experience and contact information for follow-up, in addition to obtaining their consent to participate in this study and permission to contact them for follow-up studies.

We shared our questionnaire with a group of five academic experts (marketing professors from reputable Indian management institutes with expertise in B2B) to ensure the validity and flow of the content as well as to eliminate redundancy. After incorporating the suggested language changes from this expert group, we conducted a pilot study with 21 SCM experts (all of whom had at least five years of relevant work experience) recruited via LinkedIn. According to follow-up interviews with these respondents, all indicated a high level of familiarity with the screening questions and survey items and expressed satisfaction with the questionnaire's language and flow. We determined a priori, using Soper's (2021) work as a guide, that a minimum sample size of 200 would be appropriate for our purposes. We then moved on to the actual study.

To begin, we joined LinkedIn groups using the keywords "supply chain management," "SCM," "supply network," "procurement," "general merchandise manager" and "logistics," consistent with recent B2B research by Zide *et al.* (2014), Barry and Gironda (2018), Kumar *et al.* (2019), Zou *et al.* (2019) and Schmitt *et al.* (2021). Following that, we created a database of potential respondents by conducting a search on these groups based on purposeful sampling. To ensure that we captured only active profiles, we limited our search to professionals who have a premium LinkedIn account, have at least 500 followers, and have published any content on LinkedIn in the past 30 days (Schmitt *et al.*, 2021; Cortez and Dastidar, 2022). The "first connections" (those known to researchers) were omitted (Zide *et al.*, 2014). We manually reviewed each result with the assistance of four assistants, resulting in a list of 2101 profiles from 2080 firms with more than five years of experience in SCM (Kumar *et al.*, 2019). According to Anees-ur-Rehman and Johnston's (2019) work, these firms' annual revenue and employee size were determined using a reliable, commercially available database and their respective websites. This exercise resulted in the deletion of 1,095 firms from the list that did not meet the
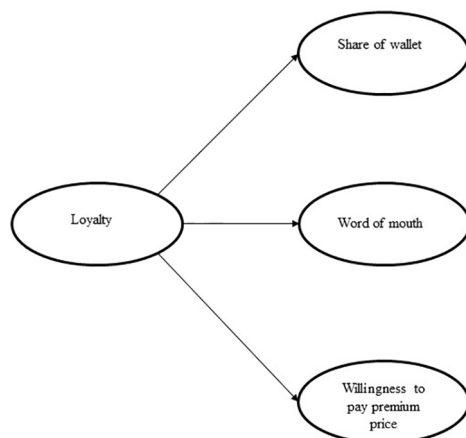
criteria, leaving a list of 984 prospective firms (with 985 prospective respondents) that did.

The 985 prospective respondents were contacted via LinkedIn Inmail [as per Cho and Lam (2020)] and asked to consent to participate (in this and subsequent studies) via an attached questionnaire link. In total, 564 individuals consented to participate, granted permission, and their self-declared experience as captured on their public LinkedIn profile was corroborated by their responses to the questionnaire's questions about their profile (Zide *et al.*, 2014). In total, 61 respondents did not complete the questionnaire, despite repeated reminders. In total, 271 respondents answered "Yes" to the screening question [3], while the remaining 503 valid responses (from 503 firms) were negative. We completed the sample by the first week of November 2020, and the characteristics of the respondents are summarized in Table 1.

3.2.2 Measurement scales
We adapted the scales used by Fatma *et al.* (2018) and Shankar and Jebarajakirthy (2019) to measure behavioral loyalty. We adapted the scales used by Sirdeshmukh *et al.* (2002) and Wirtz *et al.* (2007) to measure the share-of-wallet. For willingness to pay premium prices, we used Dwivedi *et al.*'s (2018) scale, and for word of mouth, we used Taheri *et al.*'s (2021) scale. Appendix 1 captures the details of all the scale items. Respondents were asked to rate the above variables on a five-point Likert scale where 1 indicates "strongly agree" and 5 indicates "strongly disagree."

3.3 Analysis and results
Using SPSS v.22, we subjected the data to normality, multicollinearity, and common method bias (CMB) tests, as well as to exploratory factor analysis (EFA). As evident in Table 2, the estimated skewness and kurtosis values (which signify the normality of the data), variance inflation factor (VIF) values and tolerance range (which signifies the absence of multicollinearity) were all within the prescribed ranges (Hair *et al.*, 2006). We performed EFA with a principal component matrix under the promax condition with eigenvalues greater than 1. This resulted in four factors with loadings above 0.7 for each item. Cronbach's alpha values exceeded 0.7 for each factor in the dataset (Table 3). Results of the Kaiser–Meyer–Olkin measure of sampling adequacy and Bartlett's (1954) test of sphericity were also within the prescribed values (Hair *et al.*, 2006). CMB was absent as Harman's single factor test yielded a value of 28.91% (Podsakoff and Organ, 1986).

Subsequently, we performed confirmatory factor analysis (CFA) in AMOS v.21 using the maximum likelihood method. Composite reliability (CR) values exceeded 0.7 and average variance extracted (AVE) values exceeded 0.5 for each of the corresponding factors, indicating convergent validity. Simultaneously, all the AVE values exceeded the maximum shared variance (MSV) for each of the corresponding factors, and the square roots of these AVE values were greater than the correlation amongst the constructs. The CFA loading values for each item were above 0.72, indicating reliability, convergent validity, and discriminant validity (Fornell and Larcker, 1981) (Table 3). CFA results also indicated a good model fit based on prescribed values (Table 4) (Hair *et al.*, 2006; Malhotra and Dash, 2016).

Next, we conducted multi-group analysis (MGA) to examine the differences between single-homer and multi-homer respondents. To do this, we used AMOS v.21 to perform structural equation modelling (SEM) under the maximum likelihood method. The estimated CMIN values, or degrees of

Table 1 Respondents' characteristics

Variables	Category	Study 1 N 503 % of sample	Study 2 458 % of sample	Study 3 242 % of sample
Age	25–35	53%	52%	55%
	36–45	41%	39%	41%
	46–55	6%	9%	4%
Sex	Men	71%	73%	78%
	Women	29%	27%	22%
Employee size	100–500	31%	33%	27%
	50–1000	32%	32%	45%
	1001–2500	21%	21%	17%
	>2500	16%	14%	11%
Work experience	5 to 10 years	55%	56%	46%
	11–15 years	26%	27%	42%
	16–20 years	11%	10%	7%
	>20 years	8%	7%	5%
Yearly sales	10–100 cr INR	47%	48%	41%
	101–500 cr INR	30%	31%	39%
	501–1000 cr INR	14%	14%	11%
	>1000 cr INR	9%	7%	9%
Customer category	Single-homing	232	212	0
	Multi-homing	271	246	242
Multi-homing industry	Telecom services	83%	85%	100%
	Cloud	17%	15%	

Table 2 Preliminary tests

	Study 1	Study 2	Study 3
N	503	458	242
Skewness	−0.93–0.91	−0.91–0.90	−0.83–0.78
Kurtosis	−1.5–1.4	−1.4–1.4	−1.2–1.1
Tolerance estimate	0.21–0.57	0.21–0.55	0.21–0.56
VIF	1.7–4.7	1.8–4.8	1.8–4.3
Kaiser–Meyer–Olkin measure	0.90	0.88	0.89
Bartlett's test of sphericity significance	0.000	0.000	0.000
Harman's single factor test (%)	28.91%	31.22%	33.13%

Table 3 EFA, Convergent validity and discriminant validity (Study 1)

Composite	Items	EFA	CFA	Cronbach's alpha	CR	CV	MSV	Behloy	Pr Prem	WOM	SOW
Behloy	Behloy1	0.79	0.77	0.77	0.831	0.62	0.179	0.79	0.376	0.381	0.423
	Behloy2	0.80	0.81								
	Behloy3	0.75	0.79								
Pr Prem	Pr Prem1	0.81	0.75	0.84	0.80	0.58	0.246	0.376	0.76	0.475	0.496
	Pr Prem2	0.82	0.75								
	Pr Prem3	0.85	0.78								
WOM	WOM1	0.89	0.81	0.85	0.81	0.58	0.268	0.381	0.475	0.76	0.518
	WOM2	0.81	0.76								
	WOM3	0.84	0.73								
SOW	SOW1	0.90	0.84	0.89	0.85	0.65	0.268	0.423	0.496	0.518	0.80
	SOW2	0.88	0.82								
	SOW3	0.87	0.76								

Notes: Behloy = Behavior loyalty; Pr Prem = Willingness to pay premium prices; WOM = Word of mouth; SOW = Share of wallet

Table 4 Model fit

		CFA	
Index	Study 1	Study 2	Study 3
CMIN/*df*	2.71	2.93	2.84
GFI	0.94	0.93	0.94
AGFI	0.92	0.91	0.92
NFI	0.96	0.95	0.96
RFI	0.96	0.95	0.96
IFI	0.97	0.96	0.96
TLI	0.97	0.96	0.97
CFI	0.97	0.96	0.97
RMSEA	0.047	0.053	0.049

freedom for constrained and structural weights, were examined using Gaskin's Excel package of macro stat tools (Warsame and Ireri, 2018; Anouze and Alamro, 2019). This Excel sheet for chi-square differences features the following values: CMIN = 1029.16, df = 361 for the unconstrained model, and CMIN = 1055.29,

df = 381 for the structural weights. Simultaneously, we estimated z-scores using the same macro stat tools; in this case, we input the regression coefficients and critical ratios for each cohort (single-homers and multi-homers) to examine any differences at the path level.

Table 5 demonstrates that loyalty toward an SP positively affects willingness to pay premium prices (β_{Single} = 0.524, $p <$ 0.001; β_{Multi} = 0.263, $p <$ 0.02), word of mouth (β_{Single} = 0.402, $p <$ 0.02; β_{Multi} = 0.261, $p <$ 0.05) and share-of-wallet (β_{Single} = 0.591, $p <$ 0.001; β_{Multi} = 0.287, $p <$ 0.02) for the preferred SP among both single-homers and multi-homers, thereby providing empirical evidence for *H1*, *H2* and *H3*. The estimated z-scores for loyalty → willingness to pay premium prices (z = −2.591, $p <$ 0.005) and loyalty → share-of-wallet (z = −3.124, $p <$ 0.005) were significant, thereby supporting *H2a* and *H3a*. However, the estimated z-score for loyalty → word of mouth was not significant (z = −1.123, NS), contradicting *H1a*. This may be because there is no financial cost for talking about a preferred SP, making it more likely that

Table 5 Multi group analysis (Study 1)

Hypotheses (proposed direction/sign)	Paths			Single-homing		Multi-homing		
				Estimate	*p*	Estimate	*p*	z-score
H1 (+ve)	WOM	←	Behloy	0.402	0.01	0.261	0.04	−1.123
H2 (+ve)	Pr Prem	←	Behloy	0.524	***	0.263	0.03	−2.591**
H3 (+ve)	SOW	←	Behloy	0.591	***	0.287	0.01	−3.124**

Notes: (Behloy = Behavior loyalty; Pr Prem = Willingness to pay premium price; WOM = Word of mouth; SOW = Share of wallet; ***p-value < 0.001; **p-value < 0.005

multi-homers will behave similarly to single-homers in this instance. The results indicate that multi-homers' loyalty outcomes (financial) are different than single-homers' loyalty outcomes (financial); hence, a cause of concern for SPs, as multi-homers can adversely affect SP's revenues. As such, SPs would benefit from a greater understanding of customers' behavioral and psychological attributes. To this end, the subsequent study focuses on the differential psychological factors that drive multi-homers' versus single-homers' loyalty to SPs.

4. Study 2

To fulfill RO (2), we drew upon social exchange theory (SET), using the rule of reciprocation and cost-benefit analysis as a frame (Emerson, 1976). According to SET, these two properties promote a sense of fairness in relationships (Hwang and Choi, 2020), whereas the absence of reciprocation or benefits indicates increased risk (Xu, 2020). Costs, in this case, entail inputs such as time, energy and money, whereas benefits encompass the positive outcomes of these costs, such as services, discounts, information or status (Kelley and Thibaut, 1978). SET posits that individuals perform cost-benefit analysis in every action context, enumerating the perceived costs of performing an action in this context and evaluating the benefits enabled by these costs (Emerson, 1976). This kind of cost-benefit analysis can yield favorable or unfavorable customer attitudes toward a particular buying context (Hwang and Choi, 2020). Arguably, COVID-19 has made customers even more deliberative, pushing them to curtail discretionary spending (Donthu and Gustafsson, 2020; Sheth, 2020). Thus, SET has become even more relevant in B2B marketing in the current climate of uncertainty (Cortez and Johnston, 2020).

Much like all the outgoes can approximate cost, value can approximate benefit. In the B2B literature, the dominant modes of value are process value, relationship value and product value (Ramaswami and Arunachalam, 2016; Ruiz-Martínez *et al.*, 2019). Process value encompasses all the performance-related aspects of a service, including service quality, service delivery, meeting expectations, customization, appropriate support and speedy redressal of complaints (Ramaswami and Arunachalam, 2016; Baliga *et al.*, 2020). Relationship value covers all the costs and benefits driven by the relationship between the supplier and the client, including readiness to customize, collaboration and confidence (Ruiz-Martínez *et al.*, 2019). Product value involves fair, just and competitive pricing, as well as the availability of discounts and rewards (Almquist *et al.*, 2018).

Existing B2B research abounds with studies extolling the efficacy of process value, relationship value and product value in generating customer satisfaction (Ramaswami and Arunachalam, 2016; Ruiz-Martínez *et al.*, 2019), where satisfaction is defined as the evaluation of service outcomes in light of expected relationships, service quality, functionality, and usability (Bambauer-Sachse and Helbling, 2021). However, based on MBL research, we can deduce that the effects of perceived process value, relationship value and product value on satisfaction are stronger for single-home owners than for multi-home owners (Felix, 2014; Quoquab *et al.*, 2014; Arifine *et al.*, 2019; Goode, 2020). This brings us to our second set of hypotheses:

4.1 Hypotheses

H4. For both single-homers and multi-homers, relationship value positively affects satisfaction toward the preferred SP(s).

H4a. Single-homers' perceived relationship value has a stronger (positive) effect on satisfaction than multi-homers' perceived relationship value.

H5. For both single-homers and multi-homers, process value positively affects satisfaction toward the preferred SP(s).

H5a. Single-homers' perceived process value has a stronger (positive) effect on satisfaction than multi-homers' perceived process value.

H6. For both single-homers and multi-homers, product value positively affects satisfaction toward the preferred SP(s).

H6a. Single-homers' perceived product value has a stronger (positive) effect on satisfaction than multi-homers' perceived product value.

Apart from satisfaction, B2B literature concludes that trust and commitment are also important variables from an SET perspective (Chai *et al.*, 2020). Trust is defined as "a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions and behaviors of another" (Rousseau *et al.*, 1998). Commitment is defined as a client's belief that a continuous and enduring relationship with the SP is of utmost importance, which may require a willingness to make short-term sacrifices to maintain such a relationship (Chang *et al.*, 2020). Studies on B2B loyalty frameworks suggest that satisfaction positively influences trust and commitment to B2B services (Bambauer-Sachse and Helbling, 2021). Further, commitment–trust theory suggests that trust positively influences commitment to B2B services (Oflaç *et al.*, 2021). Where single-homers' satisfaction strongly affects their trust and commitment to a single SP, multi-homers' satisfaction has only a weak effect on these variables (Goode, 2020). This is because single-homers' preference for a single SP concentrates the effects of their satisfaction, while multi-homers' varied preferences distribute these effects among multiple SPs (Ramaswami and Arunachalam, 2016; Goode, 2020). The same applies to commitment's effect on loyalty: single-homers' commitment has a stronger effect on loyalty than multi-homers' commitment (Dick and Basu, 1994; Wolter *et al.*, 2017; Arifine *et al.*, 2019). This brings us to our third set of hypotheses:

H7. For both single-homers and multi-homers, satisfaction positively affects trust toward the preferred SP(s).

H7a. Single-homers' satisfaction has a stronger (positive) effect on trust than multi-homers' satisfaction.

H8. For both single-homers and multi-homers, satisfaction positively affects commitment to the preferred SP(s).

H8a. Single-homers' satisfaction has a stronger (positive) effect on commitment than multi-homers' satisfaction.

H9. For both single-homers and multi-homers, trust positively affects commitment to the preferred SP(s).

H9a. Single-homers' trust has a stronger (positive) effect on commitment than multi-homers' trust.

H10. For both single-homers and multi-homers, commitment positively affects loyalty toward the preferred SP(s).

H10a. Single-homers' commitment has a stronger (positive) effect on loyalty than multi-homers' commitment.

The conceptual framework for Study 2 is illustrated in Figure 3.

4.2 Method

4.2.1 Sample

We replicated the procedure followed in Study 1 to check the content validity of our questionnaire (i.e. inviting an expert group to review the material and conducting a pilot study with 27 respondents). After incorporating the suggested language changes from this expert group, we conducted a pilot study with 27 SCM experts (all of whom had at least five years of relevant work experience) recruited via LinkedIn. According to

follow-up interviews with these respondents, all indicated a high level of familiarity with the screening questions and survey items and expressed satisfaction with the questionnaire's language and flow. We determined *a priori*, using Soper's (2021) work as a guide, that a minimum sample size of 200 would be appropriate for our purposes. We then moved on to the actual study.

Moreover, we sent the online questionnaire to the same 503 respondents (using the adapted and intended for Study 2 measurement scales) who completed Study 1, only a few months later (in February 2021). As part of their longitudinal study, McLean (2018), Gong *et al.* (2019), and Ju and Ha (2019) used an online questionnaire to conduct a follow-up study on the same set of customers.

Of these, 37 did not respond and eight shared incomplete responses, despite reminders. We asked the same screening questions from Study 1 to determine the distribution of single-homers and multi-homers; 12 respondents who initially registered allegiance to a single SP were now using more than one SP, thereby shifting from single-homers to multi-homers. The resulting sample of 458 SCM professionals (with their respective consent for the study) comprised 247 multi-homers, and the rest were single-homers. The sample was adequate for

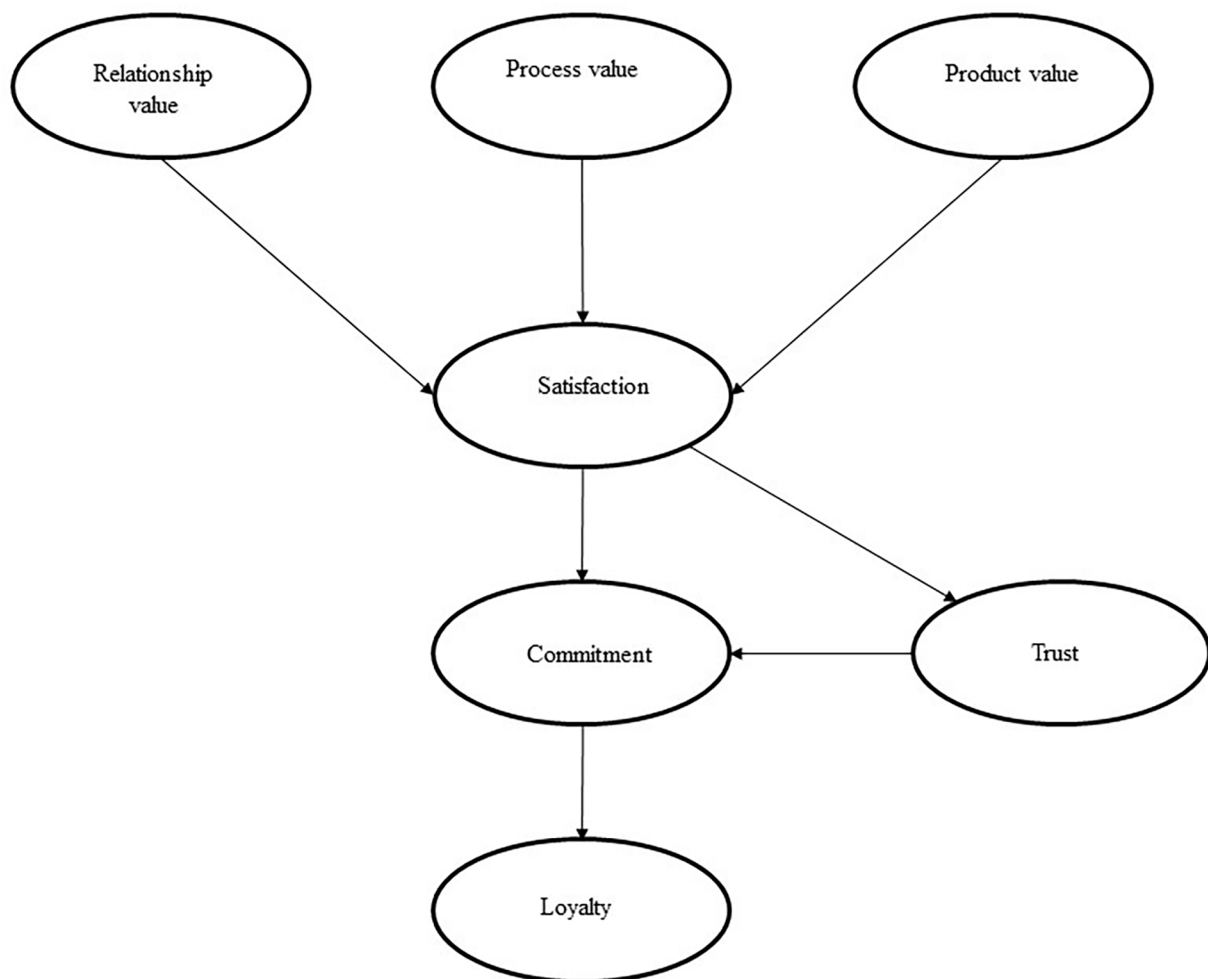**Figure 3** Conceptual framework (Study 2)

Table 6 EFA, Convergent validity and discriminant validity (Study 2)

Variable	Items	EFA	CFA	C alpha	CR	CV	MSV	COMMT	Rel val	Prod	ProcV	STSFN	TRSS	BEHLO
COMMT	Commt1	0.81	0.89	0.79	0.85	0.66	0.42	0.812						
	Commt2	0.86	0.89											
	Commt3	0.76	0.68											
Rel val	RelVal1	0.79	0.702	0.71	0.78	0.54	0.22	0.426	0.735					
	RelVal2	0.87	0.74											
	RelVal3	0.87	0.8											
Prod	ProdVal1	0.84	0.86	0.85	0.91	0.76	0.28	0.523	0.369	0.873				
	ProdVal2	0.85	0.84											
	ProdVal3	0.85	0.96											
ProcV	ProcVal1	0.84	0.77	0.77	0.84	0.63	0.13	0.210	0.164	0.142	0.795			
	ProcVal2	0.85	0.85											
	ProcVal3	0.80	0.79											
STSFN	STSFN1	0.79	0.734	0.76	0.84	0.63	0.22	0.327	0.469	0.308	0.363	0.795		
	STSFN2	0.83	0.811											
	STSFN3	0.79	0.836											
TRSS	TRSS1	0.79	0.75	0.72	0.78	0.55	0.28	0.365	0.395	0.533	0.230	0.180	0.740	
	TRSS2	0.81	0.71											
	TRSS3	0.75	0.76											
BEHLO	BEHLO1	0.79	0.73	0.77	0.85	0.65	0.42	0.647	0.367	0.480	0.160	0.317	0.332	0.806
	BEHLO2	0.74	0.8											
	BEHLO3	0.78	0.882											

Notes: COMMT = Commitment; Rel Val = Relationship value; Prod = Product value; ProcV = Process value; STSFN = Satisfaction; TRSS = Trust; BEHLO = Behavioral loyalty; ***p-value < 0.001; **p-value < 0.005

our purposes (Soper, 2021), and the respondents' characteristics are listed in Table 1.

4.2.2 Measurement scales

We adapted Ramaswami and Arunachalam's (2016) scales to measure perceived process value, product value and relationship value. We adapted Ruiz-Martínez et al.'s (2019) scales to measure satisfaction and Sales-Vivó et al.'s (2020) scales to measure trust and commitment. For behavioral loyalty, we adapted scales from Fatma et al. (2018) and Shankar and Jebarajakirthy (2019). Appendix 2 lists all the scale items. Respondents were asked to rate these variables on a 5-point Likert scale where 1 indicates "strongly agree" and 5 indicates "strongly disagree."

4.3 Analysis and results

We performed the same normality tests, multicollinearity tests and other analyses (CMB, EFA, CFA, SEM and MGA) as listed in Study 1. Estimated values for normality and multicollinearity tests are presented in Table 2. EFA results were in seven factors (Table 6), and CMB results were in line with the prescribed values mentioned in Study 1 (Table 2). Additionally, the estimated values for Cronbach's alpha, CFA loadings, CR, AVE, MSV and the square root of AVE were greater than the correlation amongst the constructs (Table 6), indicating convergent and discriminant validity according to the criteria specified in Study 1. The CFA results confirmed good model fit in line with prescribed values (Table 4) (Hair et al., 2006; Malhotra and Dash, 2016). The MGA results reflect a chi-square difference of CMIN = 259.17, df = 121 for the unconstrained model and CMIN = 266.28, df = 126 for the structural weights. Table 7 reflects the path level relationships and their respective z-scores.

Based on the results in Table 7, we see that relationship value positively affects satisfaction for both cohorts (β_{Single} = 0.291, $p < 0.03$; β_{Multi} = 0.282, $p < 0.001$), thereby supporting *H4*.

Table 7 Multi group analysis (Study 2)

Hypotheses (proposed direction/sign)		Paths			Single-homer		Multi-homer		
					Estimate	p	Estimate	p	z-score
H5 (+ve)		STSFN	←	Proc Val	0.245	0.01	0.141	0.048	−0.921
H4 (+ve)		STSFN	←	R Value	0.291	0.02	0.282	***	0.024
H6 (+ve)		STSFN	←	Prod Val	0.132	0.15	0.268	***	1.681*
H7 (+ve)		TRSS	←	STSFN	0.189	0.03	0.191	0.045	0.031
H8 (+ve)		COMMT	←	STSFN	0.128	0.13	0.34	***	1.943**
H9 (+ve)		COMMT	←	TRSS	0.478	***	0.259	***	−1.643*
H10 (+ve)		BEHLO	←	COMMT	0.698	***	0.434	***	−2.294**

Notes: COMMT = Commitment; Rel Val = Relationship value; Prod = Product value; ProcV = Process value; STSFN = Satisfaction; TRSS = Trust; BEHLO = Behavioral loyalty; ***p-value < 0.001; **p-value < 0.005; *p-value < 0.05

However, the estimated z-score for this relationship's path effects was not significant ($z = 0.024$, NS), so there was no evidence for *H4a*. Thus, there is no perceptible difference between single-homers' and multi-homers' perceived relationship value in terms of its effect on satisfaction. This could be because suppliers seek to maintain good relationships with clients irrespective of their share-of-wallet. The results also indicate that process value has a positive effect on satisfaction for both cohorts ($\beta_{Single} = 0.245$, $p < 0.02$; $\beta_{Multi} = 0.141$, $p < 0.05$), in line with *H5*. However, the estimated z-score for this relationship's path effects was not significant ($z = -0.921$, NS), so there was no evidence for *H5a*. This could be because the given suppliers operate with a similar set of quality standards, so much so that single-homing and multi-homing customers do not notice a difference between them. In line with *H6*, product value's effect on satisfaction was positive for both cohorts [$\beta_{Single} = 0.132$, $p < 0.15$ (NS); $\beta_{Multi} = 0.268$, $p < 0.001$], but this relationship was not statistically significant for single-homers. Furthermore, the estimated z-score for product value $\rightarrow$ satisfaction was significant ($z = 1.681$, $p < 0.05$), calling *H6* and *H6a* into question. This suggests that multi-homers are more highly oriented toward product value than single-homers are. This is consistent with previous MBL literature, which explains that customers may use multiple SPs for various reasons, including variety, difference in value and unavailability risk reduction (Felix, 2014; Quoquab *et al.*, 2014; Arifine *et al.*, 2019).

Among the antecedents to satisfaction, relationship value was found to have the highest effect on satisfaction in both cohorts. Additionally, in line with *H7*, satisfaction had a positive effect on trust in both cohorts ($\beta_{Single} = 0.189$, $p < 0.04$; $\beta_{Multi} = 0.191$, $p < 0.05$). However, the estimated z-score for this relationship's path effects was not significant ($z = 0.031$, NS). Hence, the findings do not support *H7a*. Satisfaction's effect on commitment was also positive in both cohorts [$\beta_{Single} = 0.128$, $p < 0.13$ (NS); $\beta_{Multi} = 0.34$, $p < 0.001$], and the estimated z-score for this relationship's path effects was significant ($z = 1.943$, $p < 0.005$), thus providing evidence for *H8* and *H8a*. Additionally, trust's effect on commitment was positive in both cohorts ($\beta_{Single} = 0.478$, $p < 0.001$; $\beta_{Multi} = 0.259$, $p < 0.001$), and the estimated z-score for this relationship's path effects was significant ($z = -1.643$, $p < 0.05$), thus providing evidence for *H9* and *H9a*. This suggests that, while satisfaction positively affects trust for both cohorts (in accordance with extant relationship marketing literature), it is satisfaction that drives commitment amongst multi-homers, whereas trust drives commitment among single-homers.

Commitment's effect on loyalty was positive in both cohorts ($\beta_{Single} = 0.698$, $p < 0.001$; $\beta_{Multi} = 0.434$, $p < 0.001$). Additionally, the estimated z-score for this relationship's path effects was significant ($z = -2.294$, $p < 0.005$), thus providing evidence for *H10* and *H10a*. This suggests that commitment (attitudinal loyalty) has a significantly higher effect on loyalty (behavioral loyalty) for single-homers than for multi-homers. This reinforces the fact that, while multi-homers may be committed to a given SP, they use services from multiple SPs, in line with Dick and Basu's (1994) observations on "latent loyalty" (high relative attitude and low repeat patronage). According to Wolter *et al.* (2017), the attitudinal–behavioral loyalty link is disrupted in these cases by contextual,

competitive and financial barriers, which may lead to dual loyalty or MBL (Dick and Basu, 1994). Xu (2020) posits that examining cost-benefit analysis in conditions of uncertainty may reveal the complexity of social exchange processes – for instance, when customers face hassles, risks or costs while procuring technology-based services (Leung *et al.*, 2019). Hence, it is important to study the non-attitudinal factors that engender latent loyalty and how they affect multi-homing. To this end, the subsequent study focuses on identifying non-attitudinal or situational factors (categorized under perceived risk) and examining the effects of such non-attitudinal or situational factors on B2B customers' multi-homing behavior.

5. Study 3

To accomplish RO (3), following a mixed-method design, we conducted a qualitative study with SCM experts (to elicit information about situation-specific variables affecting multi-homing), followed by a quantitative study to examine the factors uncovered. The current understanding of the situational or non-attitudinal factors affecting multi-homing is limited, and the multi-homing literature remains fragmented (Dick and Basu, 1994; Arifine *et al.*, 2019; Goode, 2020; Costa Filho *et al.*, 2020). Due to the exploratory nature of the research, we chose a qualitative research strategy for Phase 1 to represent a broad picture of the research problem and gain an initial understanding of the executives' thought processes in SCM. Additionally, this approach aids in incorporating a range of relevant concepts into the research design (Pyper *et al.*, 2019). Following that, we conducted a quantitative study in Phase 2 to determine the relationship between the factors (i.e. the factors identified in the qualitative study) and multi-homing behavior. Thus, a mixed-methods approach (beginning with a qualitative approach and concluding with a quantitative study) becomes particularly advantageous when the theoretical work is inconclusive, fragmented, or ambiguous (Bacon *et al.*, 2021). In comparison to a single-method study, this design produces comprehensive findings and provides a significantly greater understanding of the fundamental theoretical research issue at hand (Geiger and Hüffmeier, 2020).

5.1 Qualitative study

For the qualitative study, an in-depth interview method using a semi-structured interview approach was planned in accordance with the interview guide protocol developed by Creswell and Creswell (2017). It was anticipated that interviewees with more than 15 years of work experience in SCM may be equipped to provide rich information regarding organizational approaches toward multi-homing during uncertain and risk-laden times (Lecoeuvre *et al.*, 2021; Mattila *et al.*, 2021). We used the same approach, procedure, and criteria adopted in Study 1 to recruit the respondents. As with Study 1, all respondents consented to being contacted for a follow-up study along with their contact information as part of their response to the questionnaire. To begin, we identified and contacted 49 SCM experts from Study 1 who possessed more than 15 years of experience and had responded "Yes" to screening question [3]. Of these, 18 agreed to participate in this qualitative study. In response to screening question [4] in the initial study (i.e. Study 1), 12 had chosen telecom services, while the remaining six selected IT and cloud

services, which was confirmed prior to the start of this qualitative study. We contacted them via Google Meet [as described in Pyper *et al.* (2019) and Mattila *et al.* (2021)] to arrange a time that suited their schedules. Eight corporate-level executives (C-level) ([rom small (4), medium (2) and large enterprises (2)] and ten senior-level managers [from small (5), medium (3) and large enterprises (2)] were interviewed through Google Meet. These experts represented a range of business sizes and sectors, each with their own distinct characteristics, and had played a significant role in the purchasing process (Lecoeuvre *et al.*, 2021).

Through these interviews, we sought to understand what triggered their organization's multi-homing behavior. The experts were asked why their organizations subscribed to additional SPs in the past 3–6 months of COVID-19, and they were encouraged to explain with examples and incidents. Such interviews lasted between 40 and 80 minutes. With the experts' consent and the help of two assistants, we transcribed the interviews. We based our analysis on the work of Zhang *et al.* (2020), extracting and assimilating descriptive words and phrases (henceforth, descriptors) from each interview that shed light on the perceived risks of continuing with a single SP or otherwise clarified the reasons for multi-homing behavior. This coding process is depicted in Appendix 3.

We examined the resulting descriptors from the perspective of attribution theory, which aims to decipher the reasons behind customer negativity and skepticism and their effects. This approach is well-represented in marketing and advertising literature (Jackson, 2019), and recent research on B2B service failures suggests that attribution theory works to clarify the underlying cognitive and affective structures that promote attributions and produce stigma (Oflaç *et al.*, 2021).

In accordance with Jackson (2019), Oflaç *et al.* (2021), and perceived risk theory, we categorized the descriptors derived from the interviews according to the five dimensions of perceived risk, namely, security risk, performance risk, financial risk, temporal risk and social risk (Roselius, 1971; Jacoby and Kaplan, 1972; Paluch and Wünderlich, 2016; Khedmatgozar and Shahnazi, 2018; Pelaez *et al.*, 2019). In the perceived risk theory, performance risk is the possibility that a product will malfunction or otherwise fail to perform as it was designed, thereby failing to deliver the desired benefits (Paluch and Wünderlich, 2016). Financial risk is the probability that a purchase will result in a loss of money as well as subsequent maintenance costs (Khedmatgozar and Shahnazi, 2018). Social risk entails potentially losing status in one's social group as a result of adopting a product or service – for example, when a product makes the buyer look foolish or untrendy (Khedmatgozar and Shahnazi, 2018). Temporal risk alludes to lost or wasted time spent researching a bad purchase or learning how to use a product or service only to replace it when it does not perform to expectations (Pelaez *et al.*, 2019). Finally, security risk is the potential to lose control over one's personal information (Khedmatgozar and Shahnazi, 2018).

Once categorized, the results were shared with an expert group of nine academics (marketing professors from reputable management institutes) to verify our classification of the descriptors. We asked the experts to share their agreement or disagreement using a three-point scale where 1 indicates "highly agree," 2 indicates "agree," and 3 indicates "disagree"

(Meek *et al.*, 2019). We then calculated the concordance of their responses using Kendall's coefficient of concordance; the resulting value of 0.84 was above the 0.70 threshold, demonstrating high agreement amongst the experts. With this affirmation, we proceeded to include non-attitudinal factors as proposed dimensions of risk.

5.2 Quantitative study

The aforementioned study suggests that, in risky or uncertain business situations, B2B customers solicit the services of additional SPs to minimize perceived risks. This finding echoes the maxim of prospect theory: "[the] losses loom larger than the profits" (Kahneman and Tversky, 1979). Indeed, the B2B literature has clearly demonstrated that customers behave in line with prospect theory when exposed to uncertainty and risk (Donthu and Unal, 2014), reducing uncertainty or negative consequences by using risk-reduction or loss-aversion strategies (Kahneman and Tversky, 1979; Mitchell, 1999; Quoquab *et al.*, 2014). Felix (2014) and Arifine *et al.* (2019) postulated that unavailability risk reduction is an antecedent for MBL in B2C contexts; however, neither study empirically examined the effect of purported risk on MBL. Hence, we propose the following hypotheses:

5.2.1 Hypotheses

H11. Performance risks attributed to the present SP will positively influence multi-homing intentions.

H12. Financial risks attributed to the present SP will positively influence multi-homing intentions.

H13. Security risks attributed to the present SP will positively influence multi-homing intentions.

H14. Temporal risks attributed to the present SP will positively influence multi-homing intentions.

H15. Social risks attributed to the present SP will positively influence multi-homing intentions.

H16. Multi-homing intentions positively influence actual multi-homing use.

These hypotheses converge to form the following conceptual model (Figure 4).

5.2.2 Method
5.2.2.1 Sample. We combined the below-stated scales into a Google Survey questionnaire and presented this questionnaire to five academic experts for validation. Thereafter, we conducted a pilot study with 31 industry experts to further confirm content validity, as per the procedure adopted in Studies 1 and 2. The experts suggested vocabulary-related changes, which were incorporated. Using Soper's (2021) work as a guideline, we determined a priori that a minimum sample size of 200 would be appropriate for our purposes. From there, we proceeded to the actual study.

Then, following the same procedure used in Studies 1 and 2, we sent the questionnaire (with the measurement scales adapted and meant for Study 3) to all respondents who had indicated telecom use in Study 1 ($N = 271$). McLean (2018), Gong *et al.* (2019) and Ju and Ha (2019) have reapproached

Figure 4 Conceptual framework (Study 3)
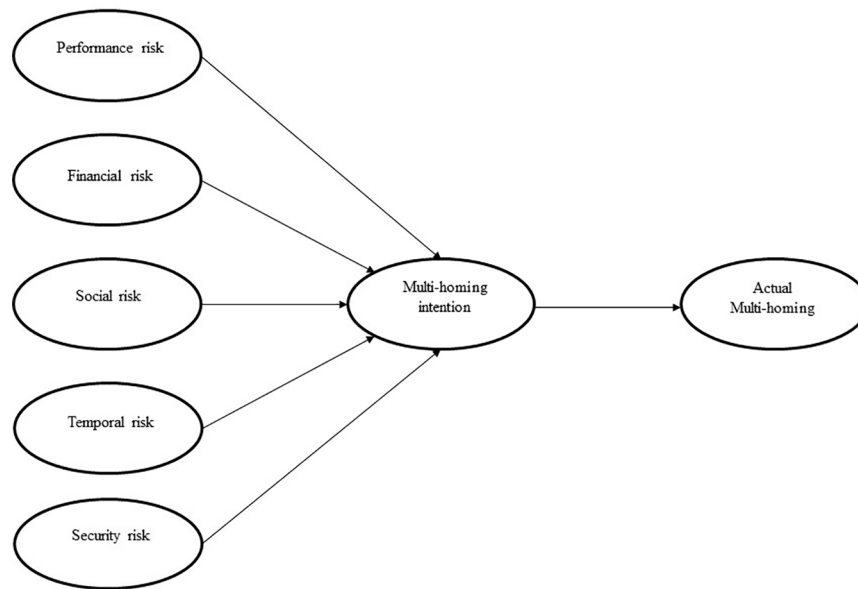
the same set of customers to conduct a subsequent study as a part of their longitudinal study. Of these, 248 responded with their consent, though 28 did not fully complete the questionnaire (pending reminders, 22 of these individuals eventually completed their questionnaires by mid-March 2021). Thus, 242 respondents formed part of the final study (Table 1). This sample size is considered adequate for the purpose of the study (Lee *et al.*, 2015).

5.2.2.2 Measurement scales. We adapted Khedmatgozar and Shahnazi's (2018) strategies to measure security risk, functional risk and temporal risk, and combined them with Hwang and Choe's (2020) scales to measure financial and social risk. Items for multi-homing intention were also adapted from Khedmatgozar and Shahnazi's (2018) work, whereas items for actual buying behavior were adapted from Arifine *et al.* (2019). Respondents were asked to rate the above

Table 8 EFA, convergent validity and discriminant validity (Study 3)

Variable	Items	EFA	CFA	CR	AVE	MSV	AU	PR	FR	SR	TR	SOCR	IUM
AU	AU1	0.81	0.86	0.92	0.79	0.40	*0.89*						
	AU2	0.78	0.87										
	AU3	0.83	0.87										
PR	PR1	0.85	0.85	0.90	0.74	0.26	0.46	*0.86*					
	PR2	0.87	0.90										
	PR3	0.77	0.91										
FR	FR1	0.74	0.88	0.94	0.84	0.27	0.51	0.47	*0.92*				
	FR2	0.76	0.89										
	FR3	0.81	0.88										
SR	SR1	0.77	0.87	0.94	0.83	0.21	0.39	0.34	0.26	*0.91*			
	SR2	0.83	0.89										
	SR3	0.85	0.90										
TR	TR1	0.76	0.86	0.94	0.85	0.23	0.36	0.37	0.33	0.28	*0.92*		
	TR2	0.78	0.85										
	TR3	0.74	0.81										
SOCR	SOCR1	0.82	0.78	0.92	0.79	0.20	0.37	0.29	0.35	0.32	0.34	*0.89*	
	SOCR2	0.81	0.81										
	SOCR3	0.82	0.81										
IUM	IUM1	0.76	0.82	0.95	0.86	0.40	0.63	0.51	0.52	0.46	0.48	0.45	*0.93*
	IUM2	0.77	0.83										
	IUM3	0.79	0.85										

Notes: *PR = Performance risk; FR = Financial risk; SR = Security risk; TR = Temporal risk; SOCR = Social risk; IUM = Intention to use multi-homing; AU = Actual multi-homing use*; Figures in italics are square root of AVE

variables on a five-point Likert scale where 1 indicates "strongly agree" and 5 indicates "strongly disagree." All items are listed in Appendix 4.

5.2.3 Analysis and results
Estimated values for the normality and multicollinearity tests (Table 2), CMB (Table 2) and EFA (resulting in seven factors) (Table 8) were in line with the prescribed values listed in Studies 1 and 2. Additionally, the estimated values of Cronbach's alpha, CFA loadings, CR, AVE, MSV and the square root of AVE were greater than the correlation among the constructs (Table 8), confirming convergent and discriminant validity as per the criteria adopted in Studies 1 and 2. CFA results confirmed good model fit in line with prescribed values (Table 4) (Hair *et al.*, 2006; Malhotra and Dash, 2016). Through SEM, we yielded values of CMIN/df = 2.69, GFI = 0.93, AGFI = 0.91, NFI = 0.97, RFI = 0.96, IFI = 0.97, TLI = 0.98, CFI = 0.98, RMSEA = 0.053, indicating a good model fit in line with prescribed values (Table 4) (Hair *et al.*, 2006, 2013; Malhotra and Dash, 2016). Furthermore, the results of SEM (Table 9) showed that all five risk dimensions had a positive relationship with multi-homing intentions. In line with *H11*, performance risk positively influences intention to multi-home ($\beta = 0.616$, $p < 0.05$). Similarly, financial risk positively effects intention to multi-home ($\beta = 0.657$, $p < 0.03$), and a positive effect of security risk on intention to multi-home ($\beta = 0.372$, $p < 0.001$) is also witnessed; thus, providing evidence for *H12* and *H13*. Further temporal risk's effect of intention to multi-home ($\beta = 0.493$, $p < 0.001$), and a positive influence of social risk on multi-homing intentions ($\beta = 0.532$, $p < 0.02$) has been witnessed. This provides the evidence for *H14* and *H15*. Additionally, multi-homing intentions are found to positively influence actual multi-homing ($\beta = 0.57$, $p < 0.001$) (in line with *H16*). Alongside this, 0.58 and 0.51 were the R^2 values for multi-homing intentions and actual multi-homing, respectively. Hence, based on a mixed-method study, we concluded that security risk, performance risk, financial risk, temporal risk and social risk are all antecedents of multi-homing. More specifically, it is the perception of such risks that drives multi-homing intentions, and multi-homing intentions lead to actual multi-homing buying behaviors.

6. Discussion

Study 1 fulfils *RO1* by establishing that multi-homing has a weaker effect on share-of-wallet and willingness to pay premium prices than single-homing; hence, multi-homing is a

Table 9 Path effect (Study 3)

		Paths		Standardized estimate	*p*
H11 (+)	PR	←	IUM	0.616	0.04
H12 (+)	FR	←	IUM	0.657	0.02
H13 (+)	SR	←	IUM	0.372	***
H14 (+)	TR	←	IUM	0.493	***
H15 (+)	SOCR	←	IUM	0.532	0.01
H16 (+)	IUM	←	AU	0.57	***

Notes: *PR = Performance risk; FR = Financial risk; SR = Security risk; TR = Temporal risk; SOCR = Social risk; IUM = Intention to use multi-homing; AU = Actual multi-homing use;* ***p-value < 0.001*

concern for SPs. Study 2 fulfils *RO2* by demonstrating a significant difference between single-homers and multi-homers; more specifically, these cohorts differ in the following relationships between constructs: product value → satisfaction, satisfaction → commitment, trust → commitment and commitment → behavioral loyalty. The study also clarifies the situational or non-attitudinal factors (categorized under perceived risk) responsible for multi-homers' weak relationship between commitment and loyalty. Study 3 combines qualitative and quantitative procedures and leverages attribution theory to decipher the situational or non-attitudinal factors underlying multi-homing. By classifying descriptors from the interviews into perceived risk dimensions, we are also able to examine their effects on multi-homing in B2B services, thereby fulfilling RO (3). Consequently, in line with the strategy followed by Batra and Keller (2016), by integrating all of their three conceptual frameworks, the present paper synthesizes and proposes a master framework of multi-homing (Figure 5).

6.1 Theoretical implications
First, the prior literature on multi-homing appears to be largely fragmented, having examined the phenomenon primarily from a developed-economy perspective. Due to the fact that emerging markets behave differently than developed markets (Sinha and Sheth, 2018), this research provides an overview of the multi-homing literature and is the first to examine the psychological mechanisms underlying multi-homing and its effects in an emerging market context.

Second, single-homing has a stronger effect on share-of-wallet than it does on willingness to premium price and word-of-mouth in that order, and a similar is observed for multi-homers, emphasizing that both single- and multi-homing have a stronger effect on variables with direct financial implications for SP. This study is likely the first to demonstrate empirically that multi-homers' loyalty has a smaller effect on share-of-wallet and willingness to pay premium prices than single-homers' loyalty. Thus, multi-homing is a concern for SPs due to the financial implications. Multi-homing may have no discernible effect on word-of-mouth toward the SP in comparison to single-homing. The present study contributes to the literature on loyalty and multi-homing by providing these insights.

Third, the current research sheds new light on what differentiates single- and multi-homers in a loyalty landscape. Findings suggest that single-homers' relationship value has a stronger effect on satisfaction than process value, whereas product value does not seem to affect satisfaction amongst single-homers. Similar to single-homers, the effect of relationship value on satisfaction is greater than the effect of process and product value on satisfaction among multi-homers. For multi-homers, product value has a greater impact on satisfaction than it does on single-homers.
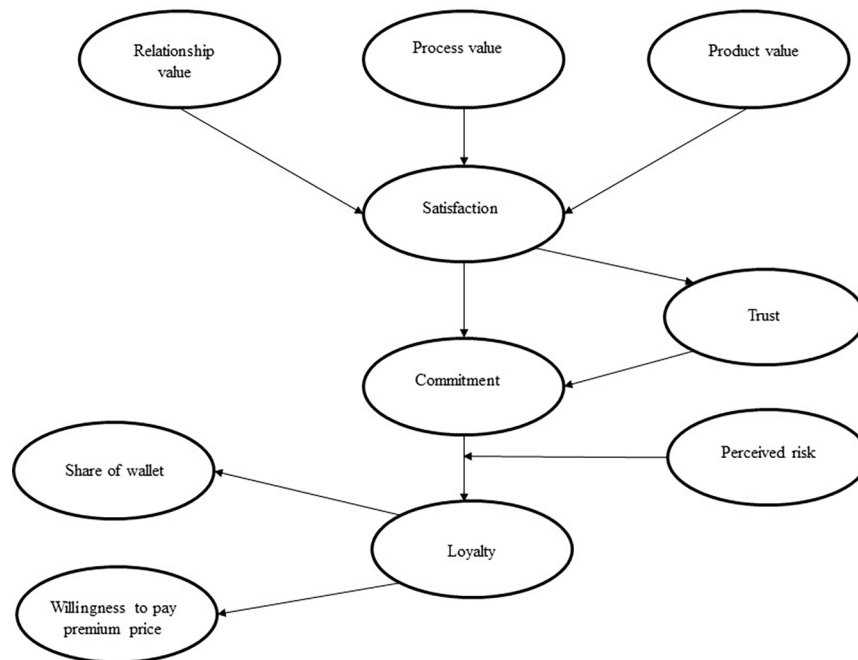
It can be inferred that single-homers may still be loyal to their preferred SP in the absence of product value, where loyalty toward their preferred SP is driven by product value as well. Additionally, single-homers' satisfaction has a stronger effect on commitment toward an SP than multi-homers' satisfaction, and single-homers' trust has a stronger effect on commitment than multi-homers' trust. Simultaneously, single-homers'

Figure 5 Master framework

commitment has a stronger effect on behavioral loyalty than multi-homers' commitment. The research also establishes that single-homers' commitment (attitudinal loyalty) has a stronger effect on behavioral loyalty than multi-homers' commitment; these effects were not previously examined empirically in a multi-homing scenario. Thus, in multi-homing, the customers are committed and loyal to a set of multiple SPs, hence dividing their loyalty; unlike in single-homing, the customers commit to a single SP. This supports the assertions of Dick and Basu (1994), Wolter *et al.* (2017), Costa Filho *et al.* (2020) and Ngo *et al.* (2021) that non-attitudinal or situational factors contribute to the low effect of multi-homers' commitment on loyalty. Furthermore, with these insights and empirical findings, multi-homing distinguishes itself from other concepts such as no loyalty (i.e. not caring about the brand/SP and randomly buying any brand/SP (Arifine *et al.*, 2019)), disloyalty (i.e. low attitudinal loyalty and low repurchase (Ngo *et al.*, 2021) and spurious loyalty (i.e. behavioral loyalty with attitudinal disloyalty or behavioral loyalty with an absence of attitudinal loyalty (Sun *et al.*, 2021)).

Fourth, COVID-19-induced uncertainty has called into question previously held notions of loyalty. Much of this can be attributed to the increased perception of risk during the pandemic compared to normal times. As a result, both firms and customers are aligning their behavior to avoid or hedge against such uncertain situations, risks and costs (Donthu and Gustafsson, 2020; Sheth, 2020; Naeem, 2021). There has been little research on multi-homing in this context, and this study is likely the first to fill that void by empirically examining multi-homing in this context. Study 3 is probably the first mixed-methods study to explore non-attitudinal or situational factors (as viewed through the lens of perceived risk theory) that promote multi-homing behavior. In doing so, the study highlights the relative importance of financial risk, social risk,

performance risk, temporal risk and security risk in affecting multi-homing behavior, in that order. Given that perceived risk is a non-attitudinal factor that drives multi-homing behavior (in line with prospect theory), we can understand why customers in emerging economies, which are laden with high perceived risks, may exhibit higher levels of multi-homing behavior than their counterparts in developed economies (Sinha and Sheth, 2018). These findings corroborate Spekman and Ford's (1977) observations, as well as those of Liu *et al.* (2005), Gurnani *et al.* (2014), Wu *et al.* (2019) and Hebisch *et al.* (2022) from the multi-sourcing literature, and resolve the controversy sparked by Ramaswami and Arunachalam's (2016) findings that no significant difference existed between the focal and intra-type firms in terms of value-specific variables.

Finally, by assimilating the insights from consumer marketing and SCM literature and providing a framework for the psychological factors of multi-homing, the present research offers a vital tool for understanding buying behavior in the post-COVID-19 landscape, which can be applicable to MBL and multi-sourcing as well.

6.2 Managerial implications

The study has several managerial implications. First, it provides empirical evidence that multi-homing is a concern for SPs as the weaker effect of multi-homers' loyalty on share-of-wallet and willingness to pay premium prices (compared to single-homers' loyalty) can financially impact SPs. Second, the study provides an empirically tested framework that can be used to identify single-homers and multi-homers and to distinguish them for marketing purposes.

Third, our findings indicate that SPs need to engender trust among single-homers to improve their commitment, as trust is an important factor in single-homers' commitment. For multi-homers, SPs should focus on maximizing product value, as this

variable drives multi-homers' satisfaction toward SPs more so than it does for single-homers. Thus, SPs need to focus heavily on pricing, discounting and loyalty rewards to encourage engagement from multi-homers. This is especially important because satisfaction is an important driver of commitment for multi-homers. SPs should explore various avenues to improve multi-homing customers' satisfaction to strengthen their commitment. Additionally, SPs should identify and weed out any non-attitudinal or situational factors that may undermine the relationship between multi-homers' commitment and loyalty.

Fourth, the findings highlight that, of all the antecedents to satisfaction, relationship value has the strongest effect on this variable for both single-homers and multi-homers. This suggests that SPs should invest in relationship value irrespective of a customer's single-homing or multi-homing behavior. Fifth, SPs should address customers' concerns regarding financial risk, performance risk, social risk, temporal risk and security risk in that order to incrementally increase multi-homers' share-of-wallet. Sixth, SPs can take advantage of multi-homing behaviors among competitors' customers by devising sound communication strategies that signal their service's superior or differentiating factors, thereby securing a larger share-of-wallet. In accordance with Felix's (2014) and Ramaswami and Arunachalam's (2016) findings, the competitors' customers may be ready to enlist an additional SP to supplement their present SP's missing features.

6.3 Limitations and future research

The present research has several limitations. For one, the studies are restricted to telecom and cloud services in Indian B2B contexts, and may therefore face generalization issues when applied to B2B settings in other emerging economies. Additionally, because the sample was limited to LinkedIn users (online mode) due to COVID-19-led lockdowns and restrictions, future studies may wish to include offline questionnaires and in-person interviews to ensure adequate representation and better generalization. Moreover, the study does not examine network effects and interoperability from platform-based multi-homing, and it may be difficult to generalize our findings to settings with high platform integration costs or SP monopolies.

Despite these limitations, the present work provides promising avenues for future research. For instance, further studies could investigate the moderating effects of employee strength, sales volume, customer volume and industry type on the specified factor relationships. Alongside this, future studies could evaluate the mediation effect of trust, satisfaction and commitment within the framework. Longitudinal studies would also enrich this research agenda by examining antecedents' differential effects on multi-homing intentions over time. Furthermore, examining the proposed master framework of multi-homing (Figure 5) empirically would be an intriguing subject for future research.

Additionally, future studies could elaborate on ways to discourage multi-homing behaviors in technology-based services. Researchers could investigate the effect of B2B multi-homing on companies' share-of-wallet or compare our model's functionality between B2B services and B2B products. Studies that identify the impact of other affect-related factors on multi-

homing would also add to the B2B service literature. It will be interesting to see whether the observed effects persist following the COVID-19 pandemic, given the post-pandemic uncertainty (Kotler *et al.*, 2021). Finally, future work could integrate insights from B2B multi-homing research with B2C literature on MBL, thereby bridging different strands of the buyer behavior field.

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Appendix 1. Measurement scales (Study 1)

1. Behavioral Loyalty (Fatma *et al.*, 2018; Shankar and Jebarajakirthy, 2019)

We shall continue using this service provider. (Behloy1)

There is high likelihood to return to this service provider in the future if there is a chance. (Behloy2)

We shall continue to prefer this service provider above other service providers. (Behloy3)

2. Share of wallet (Sirdeshmukh *et al.*, 2002; Wirtz *et al.* (2007)

Of our total monthly telecom service expenses, we spend 100% on this provider. (SOW1)

Out of 5 instances where we had to select a service provider, we selected this service provider all five times. (SOW2)

For our daily telecom use, we buy from this service provider 100% of the time. (SOW3)

3. Willingness to pay premium (Dwivedi *et al.*, 2018)

We are willing to pay a higher price for this service provider's services than for other service providers. (Pr Prem1)

We are willing to pay a lot more for this service provider's services than other service providers. (Pr Prem 2)

The price of this service provider's services would have to go up quite a bit before we would switch to another service provider. (Pr Prem3)

4. Word of mouth (Taheri *et al.*, 2021)

We shall say positive things about this service provider to others. (WOM1)

We are willing to pay a lot more for this service provider's services than other service providers. (WOM 2)

We are likely to spread positive word of mouth about this service provider. (WOM3)

Appendix 2: Measurement scales (Study 2)

1. Process value (Ramaswami and Arunachalam, 2016)

_____provides customized solutions to us. (ProcVal1)

_____provides fast and easy access to its services. (ProcVal2)

_____resolves problems quickly and accurately. (ProcVal3)

2. Product value (Ramaswami and Arunachalam, 2016)

_____offers us competitive prices. (ProdVal1)

_____offers us special programs to save money. (ProdVal2)

_____has provided reasonable and fair pricing to us. (ProdVal3)

3. Relationship value (Ramaswami and Arunachalam, 2016)

_____has our best interest in its mind while offering services. (RelVal1)

_____effectively collaborates with us to improve our business- acts as a valuable business resource. (RelVal2)

_____deals with us in a personal and a friendly manner. (RelVal3)

4. Trust (Sales-Vivó *et al.*, 2020)

We can rely on _____for the promises made to us. (TRSS1)

Even in a vague situation, we are not hesitant to do business with_____. (TRSS2)

_____is trustworthy. (TRSS3)

5. Commitment (Sales-Vivó *et al.*, 2020)

In future, we intend to use the services of _____. (Commt1)

We are dedicated to continuing doing business with_____. (Commt2)

We are resolute about our future intent to do business with_____. (Commt3)

6. Satisfaction (Ruiz-Martínez *et al.*, 2019)

We are very satisfied with_____services. (STSFN1)

We are very pleased with what_____does for us. (STSFN2)

Our firm's decision to work with _____is correct. (STSFN3)

7. Loyalty (Fatma *et al.*, 2018; Shankar and Jebarajakirthy, 2019)

I shall continue using this service provider. (Behloy1)

There is high likelihood to return to this service provider in the future if there is a chance. (Behloy2)

I shall continue to prefer this service provider above other service providers. (Behloy3)

Appendix 3

Table A1 Dimensions of perceived risk (Study 3)

Risk dimensions	Descriptor words	
	Telecom services (Expert Count 12)	Cloud & IT systems (Expert Count 6)
Security risk	'Data protection issue' (4); 'third party authentication' (4); 'secured login' (3); 'logs storage and retrieval'(3); 'certified auditing'(3); 'auto vulnerability correction & reports'(3); 'law enforcement disclosure'(2)	'Authentication-grades of identity assurance'(4); 'Cryptography & hardware protection' (3); 'unauthorized access'(3); 'secured logins' (3); 'immunity from hacking' (3); 'espionage by competitors' (2); 'frequent remote repairs' (2); 'service technician's access to information' (1)
Performance risk	'Inadequate response time' (9); 'service- downtime levels'(7); '24X7 hours L1, L2, L3 support' (6); 'reputation, experience & superior technology of other SP' (6); 'disability to customize' (5); 'unplanned downtimes' (4); 'capacity & scalability' (3); 'redundancy levels'(3); 'SLA analytics' (1); 'SLA predictive monitoring' (2); 'effective and efficient on-boarding'(2); 'data retention post repair' (2)	'Malfunctioning frequency'(3); 'service failure-led functional loss' (3); 'non availability of service report ' (2); 'collateral damage to equipment during service failure' (1); 'service failure after repair' (1); 'remote repair barriers' (2); 'intricacy level of integrating another SP' (2)
Financial risk	'Downtime-led financial loss' (7); 'better value proposition with other SPs' (6); 'financial switching costs' (6); 'vague pricing' (5); 'rate reductions and discounts due to service interruption' (3); 'risk of platform obsolescence' (1)	'Non transparent pricing' (2); 'vague maintenance contracts' (2); 'risk of obsolescence'(1); 'loss on reneging on exclusive deals' (3); 'frequent downtimes-lead loss' (2); 'financial intricacies of continuing with SP'(2)
Temporal risk	'Downtime duration' (5); 'tolerance for time loss' (5); 'time and effort- solution learning' (5); 'time wastage-task performance'(5); 'easy and efficient solution-other SPs'	'Unplanned downtimes frequency (3)'; 'service downtimes frequency (2)'; 'duration of downtime (2)'
Social risk	'Competition using multiple vendors' (7); 'competition using superior features available with other SPs' (7); 'client engagement issues with SP' (5); 'employee pressure' (5); 'consultant's advice- add SPs' (4); 'fear of engagement failure with SP' (1)	'Sour relationship with SP' (2); 'employee pressure' (2); 'technology acceptance by employees' (1)

Appendix 4

Table A2 Measurement scales (Study 3)

		While considering adding additional Telecom service provider(s)(TSP(s)), our organization anticipated that
Performance risk	Khedmatgozar and Shahnazi (2018)	**PR1:** Continuing only with the present TSP may have potential service issues impacting our efficiency and effectiveness, unlike other TSPs who are better in these particular features. **PR2:** Continuing only with the present TSP can have potential system issues impacting our transactions with our clients, hence we need to create redundancy with additional TSP(s) on our platform. **PR3:** A single TSP's solution may not support the features or customizations required by us; thus, we need to integrate additional TSP(s) for complete solution
Security risk		**SR1:** a high risk exists in sending confidential information to the present TSP, unlike competition TSPs who may score better on this parameter. **SR2:** Our data can be easily hacked if it remains with the present TSP; thus, we need to house some sets of critical data with safer TSP(s). **SR3:** We doubt present TSP's ability in keeping our confidential information safe, unlike competition TSPs who may score better on this parameter
Temporal risk		**TR1:** Our organization's considerable time will be wasted to resolve the problems attributed to solutions of the present TSP, unlike other TSPs that are superior in these particular features. **TR2:** A lot of time needs to be spent in learning to operate the solution provided by present TSP, unlike other TSP(s). **TR3:** wastage of time in using the present TSP's solution for performing critical tasks, unlike other TSPs that have agile solutions for these tasks
Social risk	Khedmatgozar and Shahnazi (2018) & Hwang and Choe (2020)	**SOCR1:** Current TSP-led service issues may generate loss of social standing for us, we may need to hire additional TSP(s) to secure ourselves. **SOCR2:** Many of the important individuals & organizations connected to our organization think that using a single TSP may potentially expose us to high service or system risks. **SOCR3:** While resolving technical issues, we had an undesirable feeling while dealing with the employees of present TSP, unlike other TSPs who are better in client-engagement
Financial risk		**FR1:** We need additional TSP(s) added to our platform so as to guard ourselves from potential financial losses attributed to service failure from present TSP. **FR2:** Our organization is worried about potential risks of loss of money while transacting with a single TSP, unlike other TSPs that are better in proactive risk mitigation. **FR3:** Present TSP-led service or system issues may lead to loss of control of our accounts, unlike other TSPs that are better in system or service handling
Intention to use multihoming	Khedmatgozar and Shahnazi (2018)	Our organization intends to **IUM1:** systematically add an additional TSP(s) to our platform in future **IUM2:** use multihoming (a set of multiple TSP(s) in future for the want of quick, easy and completeness of solutions. **IUM3:** use a set of multiple TSP(s) in future for all its platform needs

Actual multihoming usage (Arifine *et al.*, 2019**)**
AU1: Out of the service providers that we used in this category, there is a set of service providers that we *like* to use more than other service providers AU2: Among the service providers we prefer in this category, there is a set of service providers that we prefer over others. AU3: We sometimes use different service providers we like in this category, but we *always come back* to use a set of our most preferred service providers

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