Understanding the formation of reciprocal hyperlinks between e-marketplace sellers

Zhaoran Xu a, Youwei Wang a,⁎, Yulin Fang b, Bernard Tan c, Hai Sun a

a Department of Information Management and Information Systems, School of Management, Fudan University, 670 Guoshun Road, Shanghai, China
b Department of Information Systems, City University of Hong Kong, 83 Tat Chee Avenue Road, Kowloon, Hong Kong Special Administrative Region
c Department of Information Systems, National University of Singapore, Computing 1, 13 Computing Drive, Singapore

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ABSTRACT

Online sellers in the e-marketplace cooperate with each other to increase resources and reduce transaction costs, both of which are crucial to the success of small businesses. A commonly used IT-enabled strategy is to ally with other online sellers by exchanging hyperlinks. This paper provides theoretical guidance to sellers on how to choose partners to improve reciprocity rates in hyperlink formation. Using the resource-based view and transaction-cost rationale, we examine the effects of market conditions and seller reputation on reciprocity link formation, using real transaction data from the largest online marketplace in China. The findings indicate that partners are less likely to exchange hyperlinks if the two sellers sharing a link are in highly overlapping markets and are geographically distant from one another, but the two factors weaken each other's negative effects. The study also explores the moderating effect of seller reputation, and finds that the negative effect of market commonality is weakened by seller reputation. The results of this study can be extended to other types of small business cooperation and are also useful to platform operators for designing mechanisms to encourage cooperation among online sellers.

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1. Introduction

Over the past decade, more and more sellers have conducted their business on e-marketplace platforms, such as eBay, Amazon and Taobao (an e-marketplace owned by Chinese e-commerce giant Alibaba). The large number of sellers leads to intensified competition in the e-marketplace. For example, by the end of 2013, more than eight million active sellers were competing on Taobao. The majority of these are small businesses [1–3] with limited resources and market presence, and are vulnerable to environmental forces [4]. According to a recent study [5], in 2010, 38.4% of the sellers in apparel shut down their businesses within six months of establishing their stores on Taobao. To survive the competition, online sellers cooperate with each other and undertake the same alliance activities as traditional bricks-and-mortar firms, such as co-branding and co-marketing. In addition, they deploy distinct strategies which rely on Internet infrastructures in an e-marketplaces [6]. The strategies involve forming alliances with other online sellers by exchanging website hyperlinks.

Hyperlink is an important feature of World Wide Web (WWW) [7]. It enables visitors to jump from one webpage to another by clicking on links embedded in the hypertexts. Because there are numerous webpages with similar information contents or services, these webpages have to attract visitors’ attention by unique service offerings and techniques. Exchanging hyperlinks is a technique commonly utilized by Internet web services (more broadly those techniques fall into the category of search engine optimization). It is well known that exchanging hyperlinks can lift the rankings of the website in major search engines such as Google [8,9]. This is because websites with large number of hyperlinks will be given higher priority in search engines’ ranking algorithm. In e-marketplaces, each seller manages an online store and the key motivation of exchanging hyperlinks is simply to attract and exchange web browsing traffic because this can lead to more online purchases [10,11]. Taking Taobao as an example, a focal seller links to another seller (link seller) by putting a hyperlink on its store front (typically on the left sidebar). This is an outgoing link for the focal seller. When customers browse the focal seller’s shop, they may visit the link seller by clicking on the hyperlink. The link seller can establish a hyperlink back to the focal seller, which would be an incoming link or reciprocal link for the focal seller. When this happens, the two sellers exchange hyperlinks successfully.

Prior studies have shown that exchanging hyperlinks can help online sellers to achieve success by growing the customer base [12].
enhancing customer trust [13,14], and eventually improving sellers’ competitive advantage [15]. Hyperlinks can improve the seller’s revenue and profit but the effects only lies in the incoming links [16]. Incoming links make it easier for customers to discover the seller whereas outgoing links can reduce customer traffic and undermine the performance of the seller [17]. Thus, online sellers with more incoming hyperlinks and fewer outgoing links tend to perform better [10]. If hyperlink exchange fails and the target seller does not reciprocate by placing a hyperlink back to the focal seller on its online store, the focal seller may suffer the loss of customers from the outgoing links.

Although it is obvious that having more incoming links and less outgoing links are often good for focal sellers [10,17], it is not clear how such goals can be achieved. This is because each seller can only control its outgoing links but not the incoming links. What usually happens is that sellers initiate hyperlinks to other sellers in the hope that some of them will reciprocate by linking back. However, no prior study has examined how sellers may get more reciprocal links in e-marketplaces. To fill this important gap in knowledge, this paper investigates the following research question: What types of partner sellers are more likely to exchange hyperlinks in an online marketplace?

To address this question, we build on the literature of alliance formation in the field of strategy by conceptualizing hyperlink exchanges as exchanges of customer resources. In the strategy literature, there are two kinds of antecedents in alliance formation. One is the individual characteristics of the partner firm, such as status or age [18]; the other is the dyad characteristics between the alliance partners, such as market commonality [19]. These factors can be better understood using theoretical perspectives like resource-based view and transaction-cost rationale [20].

Utilizing a dataset collected from Taobao, this study proposes and empirically validates the main effects and the interaction of market commonality and geographical distance (two market conditions between the partner sellers), and the moderating effects of reputation (a key characteristic of online sellers). Market commonality is the extent of overlap in the market segments of alliance partners. Geographical distance is the physical distance between alliance partners. Specifically, this study finds that sellers are less likely to exchange hyperlinks if they operate in highly overlapping markets and are geographically distant from each other, but the two factors weaken each other’s negative effects. In addition, the negative effects of market commonality are ameliorated by seller reputation. These findings have important theoretical and empirical implications. Theoretically, these findings extend the generalizability of related theories from traditional bricks-and-mortar industries to e-marketplaces. Practically, these findings help online sellers to make better decisions about how to cooperate with other sellers and help platform operators make better decisions about how to enhance collaborations in e-marketplaces.

2. Theoretical background

2.1. Resource-based view and transaction-cost rationale on alliances in e-marketplaces

The strategy literature offers theoretical guidance as to why firms enter into alliances. The resource-based view argues that firms should possess resources that are rare, valuable, imperfectly mobile, and non-substitutable to achieve competitive advantage [21]. Thus, developing and leveraging resources is a key driver for alliance formation [22]. The transaction-cost rationale recommends that firms form alliances to minimize their fixed and contractual transaction costs [23]. The literature suggests that firms tend to put resource concerns ahead of cost concerns when deciding whether or not to engage in alliances [24] but considerations of economic costs can influence inter-firm relationships [25]. Therefore, this study supplements the resource-based view with the transaction-cost rationale in discussing alliance formation in e-marketplaces.

Alliance formation may differ depending on industry structure and competitive situation [26]. Given that this study is about e-marketplaces, the characteristics of the online environment have to be considered when examining resource maximization and cost minimization in alliance formation. Online sellers in e-marketplaces are small businesses which lack resources [27]. The resource-based view suggests that, to survive, they need access to resources of alliance partners, especially customer resources [6]. Indeed, it is critical for these small business to expand their customer base [28]. But it is difficult for these small business to retain customers because online retailing allows customers to transact with many different sellers [29]. Thus, in e-marketplaces, customer resources are vital but easy to come and go. Sellers engage in alliances to cooperate and compete for customer resources at the same time. The cooperation level (or competition level) depends on market conditions, such as market commonality and geographical distance [30].

Another important resource for online sellers is their reputation. Customers attach considerable importance to seller reputation in e-marketplaces [14] and seller reputation positively affects revenue and total sales [31,32]. Online sellers should consider the reputation of prospective partners when forming alliances [33]. A good reputation improves the benefits of forming alliances [34]. Thus, this study also examines the role of seller reputation in the exchange of hyperlinks.

Unlike production costs, transaction costs are incurred in organizing information, coordinating behaviour, monitoring transactions, and safeguarding interests [35]. Online sellers use e-marketplaces to select alliance partners and execute transactions, which lower search costs compared to traditional approaches [36]. However, coordination costs are higher in e-marketplaces for two reasons. First, the online environment is complex in the sense that partners can leverage on environmental uncertainty and information asymmetry to be more opportunistic [37]. Second, competition tends to be fiercer in e-marketplace and this creates conflicts in alliances, which increase coordination costs [38]. Thus, e-marketplace alliances incur lower search costs and higher coordination costs compared to alliances in bricks-and-mortar industries.

2.2. Market conditions and alliance formation in e-marketplaces

This study examines two market conditions: market commonality and geographical distance. Market commonality is commonly known as “the degree of presence that a competitor manifests in the markets it overlaps with the focal firm” [39]. When firms operate in overlapping markets, they have higher market commonality and more collective strength compared to partner firms operating in distinct industries [19].

Research has shown that firms with high market commonality are more likely to form alliances because they share similar resources. This makes it easier for them to achieve economy of scale by aggregating similar resources through alliances [19,40]. Although there may be higher search costs associated with screening prospective alliance partners [41], firms in the same markets are usually quite familiar with each other and share common market knowledge [42]. This familiarity decreases the costs of searching for prospective partners and makes the process less time-consuming [43]. Thus, firms with high market commonality are likely to form alliances.

But research has also suggested that firms with low market commonality tend to cooperate [18,22,43]. Firms that are in different markets can also form alliances to develop new and complementary resources [44]. In this situation, firms tend to cooperate when their partners have strengths that can make up for their weaknesses [18]. They also cooperate to exploit business opportunities from their partners in different markets [40]. Besides, firms with low market commonality are less likely to find themselves competing in the same market [45]. Overall, past studies have indicated that market commonality is important to alliance formation. However, given that the business environment in e-marketplaces is different, it is important to re-examine this issue of alliance formation in the context of e-marketplaces.

Geographical distance is commonly known as the spatial or physical distance between economic actors, such as alliance partners [42]. Geographical distance is well documented in the international business
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