EARLY MOVER ADVANTAGE IN AN INDUSTRY WITH LOW ENTRY BARRIER: EVIDENCE FROM ETAILERS ON THIRD PARTY ECOMMERCE PLATFORMS

Research-in-Progress

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Abstract

This research investigates early mover advantage of a special group of online firms: entrepreneurial etailers that operate on third party eCommerce platforms. The conventional wisdom suggests that early mover advantage would not be substantial when barrier to entry is low. However, this research argues that etailers, even when barrier to entry is low online, can enjoy early mover advantage because of the relatively high switching cost in the uncertain online environment, and the system design features of ecommerce platforms. Customer relationship management (CRM) capabilities, as measured by customer attraction, conversion and retention capabilities, can help enhance the sources of online early mover advantage. Panel data of 7,309 etailers from the cosmetics and women’s clothing industries is analyzed to verify the hypotheses. The empirical evidences strongly corroborate the predicted early mover advantage for online retailers and the role of CRM capabilities in boosting early mover advantage as well as etailer performance.

Keywords: Etailer, early mover advantage, customer relationship management capability, market performance
Introduction

The early mover advantage (EMA, hereafter) theory advocates that a firm can benefit from entering an industry earlier because of the achievement of technology leadership, the preemption of valuable resources (including input factors, location and equipment), and the creation of customer switching cost (Lieberman and Montgomery 1988). If the theory holds on the Internet, online firms should have little or no early mover advantage because their business models can be easily imitated, the entry barrier is low and customers can easily switch to other online stores (Lieberman 2005).

However, there is evidence of early mover advantage online. Early movers online enjoy a lenient competitive environment in the early stage of industry development that permits firms to experiment, develop skills specific to online selling and to build customer base at a lower cost. On the other hand, late Internet entrants have to face the hyper-competition and the resulting marketing resource depletion (Bogner and Barr 2000). For example, the online advertisements and customer attraction expenses become unaffordable for some new entrants. The design features of the Internet platforms also favor early movers. Some information which is important for online customer decision making, such as prior sales information, store reputation or word of mouth, are endogenous in nature. Because early movers have a longer time to build and disseminate such information through the use of design features of the platform, they can enjoy an early mover advantage.

To empirically investigate the effects of early mover advantage online, we select an extremely low entry barrier business online: etailers selling on third party ecommerce platforms. The number of etailers operated on third party platforms such as Ebay and Amazon in U. S. and Taobao (the biggest etailing platform in China with 76% of the Chinese market) (Anonymous 2012) has increased dramatically in recent years. For example, in 2011, third party online sellers accounted for 30% of Amazon’s total sales (Weber 2011). At the end of 2011, there were 6 million independent stores on Taobao. These etailers are mainly small and medium sized enterprises (SMEs), with some growing into larger companies successfully attracted the venture capitalist investment. Operating a store on such a platform requires small investment because the platform with abundant feature to enable and facilitate the sale is provided by the third party. The standard templates offered by the platform further minimize learning cost of operating a store online and level the competitive field.

In such a setting, this research seeks to answer the following research questions: Is there early mover advantage on third party eCommerce platforms and if so, what do contribute to such an advantage? And how sustainable is the advantage? Drawing on the early mover advantage (Lieberman and Montgomery 1988) and organizational capability (Barney 1991) theories, we argue for the existence of online EMA, and organizational capability as a strengthening factor of online EMA. To date, only limited research has investigated etailer EMA (Min and Wolfinbarger 2005; Nikolaeva et al. 2009; Pentina et al. 2009; Shi 2010), and to our best knowledge, none has studied the etailer early mover advantage on third party eCommerce platforms.

This paper is organized as follows. Relevant theoretical background is provided first. Next, research hypotheses are developed to explain the effects of entry timing and organizational capabilities on etailer performance. The model is then verified based on the analysis of a dataset of 7,309 etailers. The empirical evidences are presented and discussed. The paper concludes with research implications and suggestions for further research.

Theoretical Background

Early Mover Advantage Theory

Early mover advantage theory (EMA) originates in the economics literature, particularly in the industrial organizational economics in the 1950s (Fawley and Fahy 2001), but its development in Management began with (Lieberman and Montgomery 1988), who suggested that first mover advantage arises from three primary resources, namely technology leadership, preemption of resources and buyer switching cost. The early movers also experience disadvantages, which are in effect the advantages enjoyed by late mover
firms. Late movers may benefit from the ability to free ride on first mover investments, resolution of technological and market uncertainty, technological discontinuities that provide gateways for new entry and various types of incumbent inertia that inhibit incumbents from adapting to environmental changes.

EMA theory has been advanced greatly in the Management literature (Lieberman and Montgomery 1998; VanderWerf and Mahon 1997). Some of the main conclusions include: (1) the significance of early mover advantage varies by situations. Certain industries and product categories such as consumer products witness higher EMA than others; (2) prior endowments of firms affect EMA; (3) comparing to other performance metrics, market share is found more significantly related to EMA.

A few researchers studied the EMA of etailers. Min and Wolfinbarger (2005) examined three etailer strategies, i.e. entry timing strategy, brick-and-click (vs. pure dot-coms) strategy, generalizing (vs. specializing) strategy. Their research found no evidence of early mover advantage, but the latter two strategies contribute to etailer performance. Nikolaeva et al. (2009) pointed out that the relationship between etailers’ entry timing and its later success as measured by website traffic and survival is not strong. EMA is found for digital products, but not sustainable (Nikolaeva et al. 2009). Lieberman (2005) argued that the lack of EMA by the Internet firms arises from the specific characteristics of the industry, i.e. low entry barriers, highly imitable business models and low consumer switching cost.

However, a few other researchers found support for EMA of etailers. The prior endowment of etailers before the market entry is found to lead to the achievement of EMA. Pentina et al. (2009)'s study demonstrated that it is better for retailers with catalogue selling experiences and retailers of large size to enter the Internet market earlier, while retailers with brick and mortar experiences are better off by entering the market late. Shi (2010) verified that for traditional retailers, prior superior operational capability can enhance their EMA. But no such evidence exists for the advertisement capability.

In sum, there is mixed evidence for etailer EMA. Furthermore, the extant literature has included both pure etailers and brick-and-click retailers in their analyses. For these retailers, they can potentially enjoy EMA because the cost of building independent website and fulfillment infrastructure serve as a significant entry barrier. It is not clear if EMA would exist for pure online etailers on third party platforms that feature fierce competition and low entry barrier.

Customer Relationship Management Capability

The current study is interested in the customer relationship management (CRM) capabilities of etailers because they not only contribute to etailer performance, but also enhance sources of EMA of etailers. CRM capability represents an important type of organizational capabilities. Organizational capability theory originates from the resource-based view (RBV) (Barney 1991), and suggests that the combination of a set of resources and complementary organizational assets can form organizational capabilities which empower a firm to gain competitive advantages. Organizational capabilities are normally defined by organization functions (Newey and Zahra 2009), and CRM capability is one of the functional capabilities.

The concept of CRM capability shifts companies’ attention from selling products to building and maintaining relationships between the company and its customers. Major activities in such a process are acquiring new customers, retaining the current customers (i.e., building long-term relationships), and enhancing relationships with them through activities such as customized communications, cross-selling, and the segmentation of customers (Payne and Frow 2005). IT solutions also increase firms’ information processing capability, making firms more efficient and effective in managing customer relationships (Boulding et al. 2005).

Research Hypotheses

Order of Entry and Etailer Performance

Despite the pessimistic view about the EMA of etailers on third party ecommerce platforms (Lieberman 2005; Lieberman and Montgomery 1998), this research argues that the sources of EMA do exist in those platforms for the following reasons. First, early movers on the platform often get abundant attention
resource from the platforms. The attention resource is the attention that the platform providers provide to etailers. As pilot customers of platforms, early movers can get a great support from the platforms, harness an opportunity to experiment with the platform, and make use of plenty of virtually free chances to market their products and stores on the platform.

Second, the switching cost of customers on an uncertain Internet market is not as low as imagined. When purchasing from etailers, consumers cannot see, touch, and feel the products, and may not acquire the knowledge about the product-person fit (Hong and Pavlou 2010), which is likely to be very specific to each etailer, and is not transferable to other etailers. This is especially true for etailers operating in the long tail that is characterized by highly differentiated products. It is also widely acknowledged that for consumer products, a consumer will form a high impression about the product used first, and his/her later consumption preference and style are also likely to be shaped by the first used brand (Lieberman and Montgomery 1998). In this sense, early entrants on the Internet can also enjoy EMA by locking in customers and shaping their preferences.

Third, the special characteristics of the Internet and some of the design features specific to third party ecommerce platforms also favor early movers. While design features of the platforms utilized by a successful etailer can be easily imitated by its competitors due to the high transparency of the Internet, some of the features are used to “signal” the store reputation and the product popularity to potential customers may not be readily available to the competitors even if those features are imitated. Signals, such as previous sales, store credit, reputation, and word of mouth information (online reviews), play a key role in online customer persuasion. While the features in a platform can be design to send these signals, those signals themselves depend on vendor's history in the platform. For example, the previous sales information of a product which can be shown to potential customers on an ecommerce platform can persuade a customer towards the most popular products or vendors. Therefore, some features which enable vendors their quality are likely to favor early movers. This further leads early movers which have larger customer base to get more of the online sales. The similar logic holds for other “signals” such as online reviews and store rating. Early movers are given longer time to “signal” their qualities to potential customers, and are always in an advantageous position comparing to the later entrants. This promotes the concentration of product sales in favor of early movers. Therefore:

**H1: Early movers on the third party ecommerce platform can achieve higher organizational performance.**

**CRM Capability and Etailer Performance**

CRM capability is an etailer’s ability to attract, convert and retain customers. Each dimension of etailer CRM capability requires a different set of marketing and relationship management skills. First, advertisements are normally used to attract new customers’ attention. There is an array of online marketing tools available to etailers, such as banner ads, search engine marketing, social marketing, email marketing, and affiliated marketing tools, etc. These tools can be either used separately, or integrated to enable innovative marketing campaigns that help attract large number of potential leads. Second, potential customers should be persuaded to make purchase (i.e., converted). For example, in search engine marketing, the design of landing page (the page that a customer view first when entering the store website) is very important in converting the customers. Therefore, running a promotion campaign and featuring promotions on the landing page can significantly increase conversion rate. Third, vendors should establish an on-going relationships with its customers in order to retain them. Logistics marketing can enhance customer shopping experience, and attract customers to purchase again. Gifts and customized offers can also help build continuing relationships with existing customers. Developing skills as how to use different marketing tools becomes very crucial to the success of an online vendor. These skills form firm specific proprietary online marketing capability.

CRM capability has been proven profitable for companies. A 5% increase in retention had impacts as high as 95% (in advertising agencies) with a low of 35% (computer software) on the net present value of a customer (Winer 2001). On the Internet, etailers can leverage the high availability of the customer clicking, browsing and purchasing data to manage customer relationships more effectively (Boulding et al. 2005). Therefore,
H2: CRM capability is positively related to an etailer’s performance.

The Interaction Effect

CRM capability of an etailer can reinforce its early mover advantage on the Internet by enhancing the drivers of EMA. First, as addressed above, the EMA of an etailer stems partially from the customer loyalty and stickiness to the store. Etailers with a higher CRM capability are better at understanding online customer needs, and creating products that fit the needs of targeted customer. These etailers normally have higher customer loyalty, and therefore stronger early mover advantage. Second, etailers with higher CRM capability are more effective in sending “signals” of store credits and product popularity online, which also helps reinforce the early mover advantage of etailers. Therefore,

H3: CRM capability enhances the impact of early entry on etailer performance.

Methodology

Measurement

Order of entry can be measured in various ways (Makadok 1998). In this research, two most prominent measures used in the literature are adopted, namely rank order of a firm by the time it enters the market and the extent of entry delay after the first mover’s entry. Multiple measures of entry order also allow the cross validation of our results. Specifically, the rank order of firm entry measures the place that the firm entry time is in the order of ascending entry times in a given market (RO), and entry delay measures the logarithm of the number of days of delays after the entry of the first entrant (LN_DAYS).

CRM capability is measured in three dimensions: customer attraction (CA), conversion (CC) and retention (CR) capabilities. CA is measured by the average page views (PV) per day within 28 days in an etailer’s store. CC (conversation rate) is measured as the rate of average daily purchasing unique visitors (PUV) to average daily unique visitors (UV) within 28 days. Purchasing unique visitors are those who have made at least one purchase during the time span. CR is measured by the percentage of customers who made at least two transactions within the last 180 days. The 180 days time span is defined to accommodate longer consumer product repurchase cycle. The market performance of an etailer is measured by its sales (SALES) within the past 28 days. Since the sample is analyzed within an industry, sales is an equivalent performance metric to market share, the most significant variable related to entry timing. Monthly dummy variables are added to control for the seasonality.

Data

A dataset of 7,309 etailers provided by a third party eCommerce platform in China was used to test the model. This eCommerce platform is the biggest eCommerce platform with a giant market share of 76%. It hosts approximately 600 million individual and SME sellers. Its business model differs from those of eBay and Amazon. Although all three are platforms allowing independent vendors to sell their products on them, eBay and Amazon mainly rely on sales commission and direct sales as major revenue source. However, the platform which is our data source allows vendors to sell without paying any commission, and derives its revenue mainly from advertisement. Therefore, it developed a wide array of marketing tools, arranged various types of marketing campaigns, and built many affiliated websites to help etailers to advertise and market themselves. Therefore, on this platform, seller can advertise products and build company image and brand proactively or only sell products without engaging in any of these activities facilitated by the platform, i.e., sell passively. On this platform, given the number of vendors selling their products in the platform, marketing capability is very important to etailers in order to be recognized by the customers.

The data is a weekly panel data, spanning a 38-week period from late Nov. 2010 to early Sep. 2011, for a total of 261,909 observations (vendor-week pairs). Two product categories represented in our dataset: the cosmetics and women’s clothing. Cosmetics products are standard while women’s clothing is extremely differentiated. Table 1 shows the descriptive statistics about the sample. As shown, women’s
clothing stores are more difficult to survive online. Stores on average experience higher customer attraction, but lower customer conversion and customer retention than those selling cosmetics.

### Table 1. Descriptive Statistics of Sample

<table>
<thead>
<tr>
<th>Variable (below)</th>
<th>Cosmetics</th>
<th>Women's clothing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of companies</td>
<td>3,737</td>
<td>3,572</td>
</tr>
<tr>
<td>Number of Observations</td>
<td>130,977</td>
<td>130,932</td>
</tr>
<tr>
<td>Age (in days)</td>
<td>808.294</td>
<td>561.834</td>
</tr>
<tr>
<td>Customer attraction (CA)</td>
<td>639.317</td>
<td>5,193.273</td>
</tr>
<tr>
<td>Customer conversion (CC)</td>
<td>5.48%</td>
<td>1.62%</td>
</tr>
<tr>
<td>Customer retention (CR)</td>
<td>19.89%</td>
<td>10.40%</td>
</tr>
</tbody>
</table>

### Data Analysis

The following model is used to test our hypotheses. We use random effect model to estimate our model as OE is fixed and does not vary across time. In the following model, OE (order of entry) is measured using RO and LN_DAYS. RO is standardized to facilitate cross industry comparison. The variables in the interaction items are centered. Each model is run using the aggregate data as well as within the two product categories.

\[
Sales_{it} = \beta_0 + \beta_1 OE_{it} + \beta_2 CA_{it} + \beta_3 CC_{it} + \beta_4 CR_{it} + \beta_5 CA_{it} \times OE_{it} + \beta_6 CC_{it} \times OE_{it} + \beta_7 CR_{it} \times OE_{it} + \beta_8 \text{Month}_{it} + a_i + u_{it}
\]

The data analysis results are shown in Table 2. As predicted by H1, the main effects of entry order are negative and significant for both product categories, regardless of the measurements of OE. This means that late entrants have lower performance than early entrants. The result is particularly strong for the women’s clothing industry (a highly differentiated industry) because the absolute value of the coefficients of OE in the women’s industry are bigger than those in the cosmetics industry.

### Table 2. Statistical Analysis of Empirical Models

<table>
<thead>
<tr>
<th></th>
<th>OE = RO</th>
<th>OE = LN_DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td>Cosmetics</td>
<td>women's clothing</td>
</tr>
<tr>
<td>OE</td>
<td>-391.420***</td>
<td>-1.7e+03***</td>
</tr>
<tr>
<td>CA</td>
<td>0.670***</td>
<td>0.069***</td>
</tr>
<tr>
<td>CC</td>
<td>2,288.910***</td>
<td>4,292.563***</td>
</tr>
<tr>
<td>CR</td>
<td>52.664</td>
<td>784.925***</td>
</tr>
<tr>
<td>CA*OE</td>
<td>0.140***</td>
<td>-0.220***</td>
</tr>
<tr>
<td>CC*OE</td>
<td>-1.5e+03***</td>
<td>-4.5e+03***</td>
</tr>
<tr>
<td>CR*OE</td>
<td>-63.546*</td>
<td>-1.2e+03***</td>
</tr>
<tr>
<td>Constant</td>
<td>532.274***</td>
<td>1269.235***</td>
</tr>
</tbody>
</table>

p-values in brackets: *p<0.1  **p<0.05  ***p<0.01

1 RO is re-coded within each category according to the order of etailer entry within that category.

The main effects of the three dimensions of CRM capabilities (CA, CC and CR) are all positive and significant. This confirms H2, i.e., CRM capability is positively related to etailer performance. The only exception is CR in the cosmetics industry, which is less significant in both models (Model 1 and 4 in Table 2). It is probably because for the cosmetics products, once a customer is used to a product, he/she is more likely to stick to it for a while. Therefore, the high customer retention is partly a result of product nature. It is enjoyed by all sellers, which weakens its ability to generate differential performance among etailers.
The interaction effects of CRM capabilities and order of entry largely support H3 too. The coefficients of CC*OE and CR*OE are all negative and significant, irrespective of the measurement of OE. The coefficients of CA*OE are also significantly negative in the women's clothing industry, and in the aggregate data analysis. Because the coefficients of OE are negative, the negative coefficients of CA*OE and CR*OE indicate that CA and CR enhances advantage of early entry etailers. However, the coefficients of CA*OE are significant but positive in the cosmetics industry. This implies that the customer attraction capability of an etailer in the cosmetics industry may weaken the EMA effects in favor of later movers.

In order to test the sustainability of EMA, we grouped samples into two groups by their operational scales. In a related research project, we have interviewed 11 etailers on this platform. For each etailer, we interviewed 3-8 staff according to the size of the company. Our interview with etailer managers on this platform suggests that when an etailer’s number of transactions reaches ten thousand, they will have acquired sufficient knowledge about operating online such as building website and providing appropriate description about products, but at the same time organization management and internal operations becomes complex and critical. They are referred as “Three Crown” sellers by the platform. Etailers without significant improvement in the management capability is unlikely to grow into the next level. Therefore, we use 10,000 transactions as a cut-off to dichotomize etailers into “small” and “large” groups. The EMA models are run within each product category in order to see whether EMA remains for larger etailers. Due to the space limitation, it is hard to show the full analysis according to different product categories, an industry dummy and its interaction with order of entry are added as a variable in this model to preliminarily show the effect of product categories.

<table>
<thead>
<tr>
<th>Table 3. Statistical Analysis Dichotomized by Etailer Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>OE= RO</td>
</tr>
<tr>
<td>(1)</td>
</tr>
<tr>
<td>(Small)</td>
</tr>
<tr>
<td>OE</td>
</tr>
<tr>
<td>CA</td>
</tr>
<tr>
<td>CC</td>
</tr>
<tr>
<td>CR</td>
</tr>
<tr>
<td>CA*OE</td>
</tr>
<tr>
<td>CC*OE</td>
</tr>
<tr>
<td>CR*OE</td>
</tr>
<tr>
<td>Industry(Cosmetics)</td>
</tr>
<tr>
<td>OE*Industry</td>
</tr>
<tr>
<td>Constant</td>
</tr>
<tr>
<td>Observations</td>
</tr>
</tbody>
</table>

p-values in brackets: *p<0.1  **p<0.05  ***p<0.01

Table 3 shows the results. In all the models, OE remains negative and significant, regardless of the measures of OE and the size of the etailers. These results suggest that early mover advantage is sustainable on the third party ecommerce platform because it is still evident in companies that grow into larger ones. It is also worth noting that the absolute values of the two coefficients of OE for large etailers (in model 2 and 4) are much higher than those for small etailers (in model 1 and 3). This suggests that EMA becomes stronger for etailers of larger size. The significant coefficients of OE*Industry suggest that the cosmetics industry negatively contributes to EMA for etailers of larger size. This implies that when etailers grow into larger ones, etailers in the women’s clothing industry experience stronger EMA than etailers in the cosmetics industry.
Discussion and Conclusions

This research investigates early mover advantage of a special group of firms online, namely etailers operating on third party electronic marketplaces. In a contrast with the prior literature that is pessimistic about EMA of etailers, our data analysis shows strong EMA effects on third party ecommerce platforms. The EMA is not only sustainable, but also gets stronger for etailers that grow larger. CRM capabilities, as manifested through three aspects, CA, CC and CR, significantly moderate the effect of EMA in boosting etailer market performance. This indicates that an etailer’s CRM capabilities can be indirect sources of EMA on the hypercompetitive online marketplaces with low entry barrier.

However, we also note in Table 2 that the coefficients of CA*OE are significant but positive in the cosmetics industry. This implies that the customer attraction capability of an etailer in the cosmetics industry may weaken the EMA effects in favor of later movers. The lower value of CA in Table 1 (639.317) and higher value of CA in Table 2 (0.67 and 0.54) in the cosmetic industry relative to those in the women’s industry (4,994.611 in Table 1, and 0.069 and 0.254 in Table 2) suggest that CA is a rare resource and a more important source of competitive advantage in the cosmetics industry. However, customer attraction capability heavily relies on capital investment since it is well known that it is more costly to acquire a customer than to retain a customer. Later comers can potentially surpass early movers if equipped with stronger financial resources.

This research makes the following theoretical contributions: (1) it contributes to the prior literature of EMA of Internet firms (Min and Wolfinbarger 2005). We found the empirical support for EMA even for etailers operating on a third party e-marketplace. This corresponds to (Makadok 1998)'s research that EMA can exist in low entry barrier industries. (2) This research also makes significant contribution to the online marketing literature because we explicitly measured and tested the impact of firm online CRM capability on firm performance. (3) The finding that organizational capabilities can be sources of EMA makes contribution to the combination of two major management theories: early mover advantage and organizational capability theories. This corresponds to the call of such research by (Lieberman and Montgomery 1998).

The research results provide some managerial suggestions to etailers on third party e-marketplaces. EMA does exist online, so etailers can benefit by entering the market earlier. Etailers can also enhance EMA by developing organizational capabilities that enhance the sources of EMAs.

Research Limitation and Future Research

Although this research makes full efforts to advance our knowledge about EMA of etailers, it is limited in certain aspects. Theoretically, only CRM capability and its interaction effects with EMA are examined because we consider CRM capability as one of the most important to complement EMA in this context. Some other capabilities, such as etailer internal operations and management capabilities, are not examined. Methodologically, only two product categories are studied in this research partly because of the data limitation. The above research limitations suggest some future research directions. For example, researchers can study more product categories to extend the generalizability of the research. Other organizational capabilities along with the CRM capability can also be studied in the future. It would also be interesting to test if EMA is different in an industry selling standard products from an industry selling differentiated products.

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