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ONLINE AUCTION EFFECTIVENESS: OPTIMAL SELLING STRATEGIES FOR ONLINE AUCTION MARKET

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Abstract

The introduction of internet auction has significantly widened the pool of consumers who participate in auctions and increased the number of companies attempting to sell their products in an auction format. Previous empirical research on auctions has focused almost exclusively on the behavior of professional bidders. In this study, we collect data on a large number of internet auctions to explore the outcome of the auction in a real marketplace. In particular, we focus on the characteristic of sellers, auction parameters, the effect of supply and demand, and examine these impacts on auction effectiveness.

Keywords: Auction, Electronic Commerce, Auction Effectiveness

1. INTRODUCTION

The rapid development of IT and its applications in business have resulted in e-markets being increasingly popular. These markets can result in significant savings for both sellers and buyers. One of the rapidly expanding applications is online auction. Since the birth in 1995, online auction have grown at a tremendous rate. And it seems become a fascinating new type of exchange mechanism. The past decade has seen the advent and growth of online auction marketplaces, with online auction revenues expected to reach \$36 billion by the year 2007 (Laudon & Traver 2004) and with online auction revenues expected to reach \$3 billion (USD) by the year 2008 in Taiwan (MIC report 2007). Previous empirical research on auctions has focused almost exclusively on the auction design and bidding strategies but little of them considered the selling strategies. For sellers, what kinds of strategies can raise their auction effectiveness which is the most important things they're urgent to know, especially for those market-newer. This research addresses this gap. We empirically examine the various dimensions of on-line auctions to see whether those factors have impact on auction effectiveness. The research framework is presented in Figure 1.

The purposes of this research are twofold. The first purpose is to investigate the relationship among the sellers' characteristic, auctions parameters, the law of demand/supply and seller's effectiveness to see whether these factors has effects on the auction effectiveness. The second purpose is to offer an optimal selling strategy for online auction market's seller. We focus on understanding different selling strategies to help those who intent to enter this market; and for those who already in the markets show them how to adjust their selling strategy in order to maximize their auction effectiveness. In summary, the model hypothesizes that measurement of seller's auction effectiveness is based on seller's characteristic, auction parameter, and the law of supply and demand.

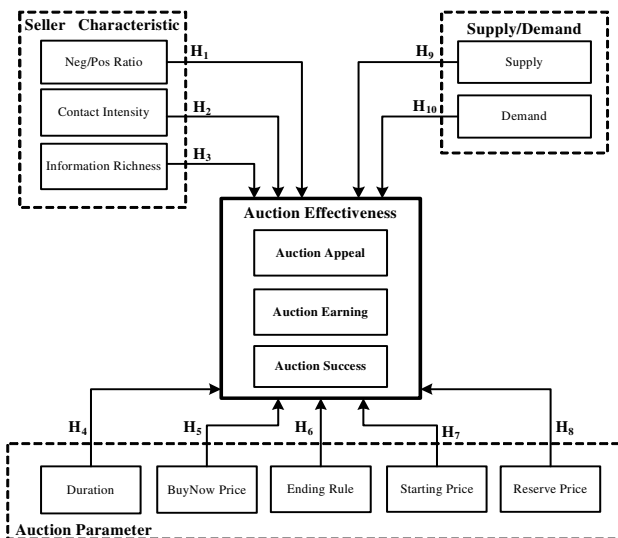


Figure 1 Research Model

2. LITERATURE REVIEW

This study involves the literature on auctions, and then draws on economics, marketing research to comprehend the auction effectiveness. The auction effectiveness consists of auction appeal, auction earning, and auction success. The auction appeal measures the number of the total bids placed in the specific auction item. The auction earning measures the highest price of the auction which is successful end with a sale. The auction success represents whether or not the auction sold out.

2.1 Reputation Mechanism

Online auction market is more risky than any other kinds of EC market. The increase of online auction fraud scared the potential market participants away. To eliminate the risk for auction users, online auction website introduces a new mechanism – reputation mechanism which is important to EC because it can provide efficient means to accumulate and distribute seller's past trading information to help buyers identify the honest sellers (Resnick et al. 2004). A number of researchers provided estimates for the value of reputation in eBay auctions and found that the amount of negative ratings negatively correlated with the final bid and that the amount of positive ratings is positively correlated with the final bid (Melnik & Alm 2002).

Both positive and negative reputations are predicted to have an effect on price premium. However, the negative reputation has greater impact on the ability of sellers to sell their products at a higher price than positive reputation (Standifird 2001). Since higher frequent sellers might face higher negative ratings, only measure the total negative rating score of the seller might be unfair. Hence, we consider the NEG/POS ratio as the independent variable which is measured by the strength of seller's negative feedback ratings to affect the auction effectiveness. Thus, we hypothesize that:

H1: The NEG/POS ratio has negative impact on auction effectiveness, regarding (a) auction appeal,(b) auction earning or(c) auction success.

2.2 Contact Intensity

Buyer-seller relationship is very important when engaging in business process. Mohammed et al. (2004) indicated that as buyers and sellers move through the relationship stages, there should be a pattern of interaction intensity, defined as the frequency of interaction. Interaction intensity or contact intensity is the communication frequency between salesperson (face-to-face or indirectly) and customers. Yadav and Varadarajan(2005) indicated that greater interactivity in the e-marketplace can result in better consumer decision-making. As the seller opened his/her communication channel to the customers, it helps buyers making the shopping decision easily. Through this communication channel (e.g. Q/A), buyers can inquire sellers about the auction item, seller can reply these questions as soon as he/she see the questions. It does not necessary for sellers to answer every questions, the seller have the choice to decide which question he/she would like to answer. A good seller should keep higher contact intensity with his/her customer. Buyers would like to make deal with the sellers who answer every question. Thus, contact intensity is measured with the number of Q&A records of the auction items and we hypothesize that:

H2: The contact intensity has positive impact on auction effectiveness, regarding (a) auction appeal,(b) auction earning or(c) auction success.

2.3 Information Richness

In online shopping environment, customer's decision-making process is influenced by the information content of the homepage (Kwon et al. 2002). It is impossible for customers to touch and feel the products and freely communicate with sellers in virtual environment. Especially in an e-auction with poor information presentation, users might be uncomfortable with the uncertainty and ambiguity caused by lack of interaction with sellers. It is impossible for buyer who engages in online auction transaction to inspect the item in person before placing the bid. Therefore online auctions bidders usually estimate the item by the pictures and description provided by the seller. A perfect description and a clear picture can let bidders understand the auction item's status making the right assessment of the item. Previous researches have already showed that additional pictures should increase the buyer's confidence in the item to be purchased and increase the final price and number of bids (Melnik & Alm 2002). In short, the level of information richness would expect to have influence on the auction effectiveness. Thus, the information richness represents the degree of the information provided by specific seller, and is measured with the extent of description and/or auction item's picture. We hypothesize that:

H3: Information richness has positive impact on auction effectiveness, regarding (a) auction appeal,(b) auction earning or(c) auction success.

2.4 Auction Parameter

On-line auction services allow sellers to specify a number of different parameters when listing an item for auction. Among these are the number of days the auction will take place, the amount of reserve price the minimum acceptable price for the seller, the level starting price, the Buy-It-Now function allow the auction to close immediately, and the ending rule. Since the auction is the dynamic pricing mechanism, the different of auction parameters would result in different auction performance.

2.5 Auction Duration

Sellers in auction set the length of the auction that will be opened for bidding. We hypothesized that the longer auction increases the number of potential buyers who may visit the site. Previous research indicated that longer auction duration will lead to higher selling revenues and attract more bidders (Lucking-Reiley et al. 2005) On the contrary, in Melnik and Alm (2002) and Wood et al. (2005) found

non-significant relationship between the length of the auction and the prices (Melnik & Alm 2002). In spite of the divergence, we expect that the longer duration of the auctions should experience more bids as well as the high price and probability of sale. Thus, we hypothesize that:

H4: Auction duration has positive impact on auction effectiveness, regarding (a) auction appeal,(b) auction earning or(c) auction success.

2.6 BuyNow Function

The idea of the “BuyNow” function is to allow the buyer submit a specific bid to buy an item and truncate auction in advance. The Theory of Price assumes that price influences buyers’ purchasing decision. A higher price may reflect a high quality and increase customer’s willingness to buy eventually (Alford & Engelland 2000). When choosing among goods, consumers retain a standard price as reference price to compare (Rajendran & Tellis 1994). The divergence in consumers’ internal price has led to view it as a range of prices – the lowest average, and highest price (Alford & Engelland 2000). And finally consumers’ highest price estimate will move toward the reference price.

In online auction environment, the BuyNow price reveals the value of a product through sellers’ perception of the value of the specific product. The present of reference price will change the consumer’s internal price of estimate in specific product. In this study, we tend to view BuyNow price as a “reference price” which provided by sellers regarding the value of the item and have positively influence on the consumer’s willingness to buy. By attracting more potential bidders place and increase the probability of sale, this reference price (BuyNow price) can induce the highest price under the bidders’ estimation. If the seller set the higher BuyNow price, we expect the auction will led to higher earnings for sellers. Thus, we hypothesize that:

H5: BuyNow price has positive impact on auction effectiveness, regarding (a) auction appeal,(b) auction earning or(c) auction success.

2.7 Ending Rule

Many experienced bidders do not enter until the last minute to avoid early price wars and signaling. This prevalent behavior has been termed sniping (Bapna et al. 2001). This sniping bidding strategy which adopted by bidders some how influences the seller’s welfare. One way to diminish the loss of seller is to set an appropriate ending rule. There are two kinds of ending rules in on-line auction sites. A hard ending rule means the auctions have a fixed deadline, they end in a specific time. A soft ending rule auctions will be automatically extended when there is no winner of the bid. Roth and Ockenfels (2002) found that a soft ending rule prevent the bidders form late bidding in the auctions. Here we expect that the soft ending rule can not only avoid the late bidding behavior of the bidders, but also increase the seller’s effectiveness of the auction. Therefore, seller who sets his/her auction as “soft ending” may increase the auction effectiveness but only on the number of bids and the ending price. Ending rule is an non-metric measures which represent the soft/ hard ending rule selected by the seller. Thus, we hypothesize that:

H6: Auction with soft ending rule will positively influence the (a) auction appeal and (b) auction earning.

2.8 Starting Price

One way to attract Web traffic is to set a very low opening bid, such as one dollar. The most common argument is that a high starting price tends to scare away potential bidders, which may result in the goods not being sold at all (Katkar & Lucking-Reiley 2001) . By contrast, a low opening bid can smooth the bidding process, building up bidding “momentum” therefore raising the ending price. Previous researches found that as the minimum bid increases there will be a sharp drop-off in the

number of bidders (Lucking-Reiley et al. 2005). In this study, we attempt to find out the relationship between the starting price and the auction effectiveness. We expect a negative relation between the starting price and the number of bids, a positive relation with ending price and will increase the probability of auction ending with a sale. Thus, we hypothesize that:

H7: Starting price has positive impact on (b) auction earning, but has negative impact on (a) auction appeal and (c) auction success.

2.9 Reserve Price

The reserve price is the lowest price in which seller willing to accept for the auction item sold out. In a traditional auction house, the bids continue increasing until the point when no bidder is willing to raise the current bid higher. But if the highest bid amount does not exceed a reserve price which specified in advance by the seller, the item will not be sold to the highest bidder. No bidders know in advance the amount of the secret reserve. Online auction sites allow sellers to keep reserve price amounts secret.

Lucking-Reiley et al. (2005) found that the presence of reserve price increases the auction price by about 15% on average. To extent that bidding process requires precious effort, reserve price might actually drive bidders away (Lucking-Reiley 2000) and decrease the auction appeal. The reason is that most buyers do not like reserve price auctions and will avoid them. Over use of high reserves will force people to bid on other items. Thus, we hypothesize that:

H8: Auction with reserve price will positively influence the (b) auction earning, but will negatively influence the (a) auction appeal and (c) auction success.

2.10 The Variation of Supply and Demand

Online auction is one of the dynamic pricing mechanisms which defined as the buying and selling of goods in markets where prices are free to adjust in response to supply and demand conditions at the individual transaction level (Garbarino & Lee 2003). Internet auction market is just like any other market which could be influenced by fluctuation of supply and demand. In the online auction market, sellers set the rules and bidders decide the final price. The auction is a market-based mechanism that allows the price of items to vary in order to reconcile discrepancies between supply and demand (Wood et al. 2005). We may consider demand as a force tending to increase the price of a good, and that supply as a force tending to reduce the price.

Several auctions ending on the same date suggest large supply, led to lower bids, preventing auction end with a sale or even decreasing the ending prices. Bidders usually focus on the auction that will close in the next few hours or few minutes. While there are many identical items close in the same day, the more choices the bidders have. Therefore, the large supply volumes of the identical item which end in the same date provide more choice for bidder thereby increasing his/her earning and, on the other hand, decreasing the seller's auction effectiveness. The quantity of market supply is measured with the total number of sellers which sale the same item that end in the same day; we hypothesize that:

H9a: The quantity of market supply has negative impact on auction effectiveness, regarding (a) auction appeal, (b) auction earning or (c) auction success.

According to the survey of TWNIC - 2005 shows that the Internet users usually surf Internet during the time slot from 19:00~24:00. We propose that the auction end in the high traffic period will attract more potential customers and may attract more bidder place the bid (high demand), therefore, lead a successful auction and increase the final prices. Thus, the market demand is measured with the number of bidders which place the bid on same item; we hypothesize that:

H10: Market demand has positive impact on auction effectiveness, regarding (a) auction appeal, (b) auction earning or (c) auction success.

3. RESEARCH METHODS

Online auctions present researchers with exciting opportunities to conduct field study. Rather than passively waiting for firms and consumers to generate data that may or may not contain the exogenous variation required to test a theory, the researcher can participate actively in a market to collect data from the actual field environment (Katkar & Lucking-Reiley 2001). In order to examine the auction effectiveness, we select a sample of homogeneous items sold frequently on Yahoo! Taiwan.

3.1 Search Goods and Experience Goods

Nelson (1974) divided product into two categories: search and experience qualities. The search attribute qualities are those qualities of a product that can be accurately and efficiently evaluated prior to purchase using knowledge, inspection, reasonable effort and normal channels of information acquisition such as consumer reports. For those qualities of a product that can be accurately and efficiently evaluated only after the product has been purchased and used for a short period of time in comparison to the product's total-usage life are classified as experience goods. In order to provide better understandings of different auction performance on different product, the researchers collect two samples. For the experience goods, we selected one of the cosmetics brands. And for search goods, we selected the MP3 players, to compare whether the different product categories has different auction effectiveness.

3.2 Data Collection Process

In order to verify the hypotheses, data were collected from the auctioning of products on Yahoo! Taiwan. Yahoo! Taiwan is the most popular consumer-related on-line auctions site in Taiwan, an examination should yield sufficient data to draw well-supported conclusion that will be applicable to other auction sites with a similar market structure.

The data were chosen by certain selection criteria as followed. First, auctions were only included if they were provided "BuyNow" price. Second, the auction item must be new. For this analysis is to measure the auction earning, in the light of the new and secondary goods would end with different price level. Third, auctions with multiple quantities were excluded because the bidding behaviors between single quantity and multiple quantities might be different. Only auctions with single item were collected in the samples. In addition, we had examined other e-retailers which sell the digital product in order to inspect the price variation. The prices for two of the selected sample products are remained constant throughout the time period of the study. For search goods, 273 auctions were selected in the samples. Among these 273 observations, 135 items were actually end with a sale. For experience goods, 120 auctions were selected in the samples. Among these 120 observations, 84 items were actually end with a sale.

4. RESULT AND DISCUSSION

4.1 Profile of the Samples

Compared the two different product attributes we can see that for the search goods the sellers tend to set a high starting price¹ (in average the seller of search goods set the starting price more than half of

¹ $\text{StartinPriceSearch}/\text{MarketPriceSearch} = 2427/3532 = 68.7\%$; $\text{StartinPriceExperience}/\text{MarketPriceExperience} = 449/1225 = 36.65\%$

the market price). Again, the BuyNow price which set by sellers who sell the search goods is higher than those sell the experience goods². In comparison, we can obviously find that the ending price is lower than the market price about 19~25%³. Especially when selling the experience goods in online auction site. The experience goods have higher probability of sale (70%) and number of bids (23.53) than search goods. And for sellers who selling the experience goods tend to set a reserve price. In general, the performance is higher when seller selling the experience goods in online auction site (higher probability of sale and number of bids). One thing need to be noted is that when conduct the business on the e-auction the selling price is usually lower than market price about 20%~25%.

Table 1 presents the seller's ranking of auction performance. By sending a e-mail to sellers and asking about which is the most interested auction effectiveness regarding auction appeal, auction earning, and auction success.

Response Rate	Auction Effectiveness	%	Ranking
Search Goods 50/273= 18.32%	Auction Appeal	16% (8)	3
	Auction Earning	30% (15)	2
	Auction Success	54% (27)	1
Experience Goods 37/120= 30.83%	Auction Appeal	5.5% (2)	3
	Auction Earning	67.5% (25)	1
	Auction Success	37% (10)	2

Table 1 Ranking of Auction Effectiveness

4.2 Results

Examination of the auction effectiveness focus on three important outcomes: auction appeal (number of bids), auction earning (ending price) and auction success (likelihood of auction ending with a sale). Table 2. provides the results of multiple linear regression estimates of auction appeal (number of bids). The regression model of Search Goods explained up to 80.1% of the variance in number of bids and demonstrated that H1a (PNP=.002<.01), H2a (PCI=.000<.001), H3a (PIR2=.002<.01, PIR3=.011<.05), H5a (PBP=.026<.05), H7a (PSP=.000<.001), H10a (PD=.048<.05) are statistically supported. And the regression model of Experience Goods explained up to 69.1% of the variance in number of bids which demonstrated that H1a (PNP=.001<.01), H6a (PER=.000<.001), H7a (PSP=.000<.001), H9a (PS=.022<.05) are statistically supported. Only two factors are uniformly significantly related to auction appeal across all two product types: reputation and starting price. This means that a lower starting price and lower neg/pos rating ratio both result in higher auction appeal. In addition, contact intensity, information richness, BuyNow price and demand had significant positive impacts on auction appeals for search goods. Ending rule and supply has significant impact on auction appeal for experience goods.

Table 3 provides the results of multiple linear regression estimates of auction earning (ending price). The regression model of Search Goods' results support H5b (PBP=.000<.001) and H7b (PSP=.025<.05). This regression model explained up to 22.2% of the variance in ending price. The regression model of Experience Goods' results support H2b (PCI=.000<.001), H3b (PIR1=.000<.001, PIR2=.021<.01), H5b (PBP=.037<.05), H7b (PSP=.065<.1) and H8b (PRP=.004<.01). This regression model explained up to 66.9% of the variance in ending price.

Table 4 provides the results of logistics regressions of auction success. The results of Search Goods show that : contact Intensity (PCI=.001), Information Richness (PIR2=.003,PIR3=.008), Duration

² BuyNowPriceSearch/MarketPriceSearch= 3116/3532=88.22%; BuyNowPriceExperience/MarketPriceExperience= 979/1225=79.9%

³ EndPriceSearch/MarketPriceSearch=2837/3532=80.32% EndPriceExperience/MarketPriceExperience= 917/1225=74.48%

(PDR=.054<.1), BuyNow Price (PBP=.001), Starting Price (PSP=.001) and Reserve Price (PRP=.001) are significantly different which indicated that H2c,H3c, H4c, H5c, H7c and H8c were supported. The model goodness of fit ($X^2=93.184, p=.000<.05$) also at the significant level. The Cox & Snell R^2 (=0.289) and Nagelkerke R^2 (=0.386) indicated that there are low relationship between the independent variables and dependent variables. The result of Experience Goods shows that contact intensity (PCI=.003), information richness (PIR1=.016, PIR2=.017), BuyNow price (PBP=.028), Starting price (PSP=.003), Reserve Price (PRP=.07<.1) are significantly different which indicated that H2c,H3c, H5c, H7c and H8c were supported. The model goodness of fit ($X^2=96.108, p=.000<.05$) also at the significant level. The Cox & Snell R^2 (=0.551) and Nagelkerke R^2 (=0.781) indicated that there are middle-high relationship between the independent variables and dependent variables. In conclusion, contact intensity and information are associated with higher auction success. Auction with Reserve price are also less likely to be successful than auction without Reserve price. Lower starting prices are associated with higher auction success. The correct classification rate of logistic regression model is 73.6%~90.8% which indicated that those 5 factors can correctly predicate whether auction ending with a sale or not.

Dependent Variables: AUCTION APPEAL							
VAR	NP	CI	IR1	IR2	IR3	S	D
SG	.089***	.189***	-.022	-.105***	-.083**	.034	.058**
EG	-.209***	-.005	-.120	-.041	-.028	-.148**	.079
VAR	SP	ER	RP	DU	BP	R ²	A R ²
SG	-.785***	-.012	-.001	-.026	.066**	.801	.792
EG	-.348***	.366***	-.072	-.030	-.015	.691	.656

*0.1 significance level. **0.05 significance level. ***0.01 significance level

Table 2 Linear Regressions of Auction Appeal

Dependent Variables: AUCTION EARNING							
VAR	NP	CI	IR1	IR2	IR3	DU	BP
SG	-.099	-.057	-.117	-.099	.132	.116	.325***
EG	.034	.348***	-304***	-.182**	.031	.082	.154**
VAR	SP	ER	RP	S	D	R ²	A R ²
SG	.200**	.008	.004	.118	.003	.222	.146
EG	.217*	.031	.222***	-.036	.061	.669	.613

*0.1 significance level. **0.05 significance level. ***0.01 significance level

Table 3 Linear Regressions of Auction Earning

Dependent Variables: AUCTION SUCCESS							
VAR	NP	CI	IR1	IR2	IR3	DU	BP
SG	.561	1.505***	-.89	-.126***	-1.026***	-2.013*	-.002***
EG	1.930	.498***	-3.490**	-2.897**	.410	.139	-.024**
VAR	SP	RP	S	D	X ²	CP%	
SG	-.001***	-2.542***	.034	.475	93.184***	73.6%	
EG	-.006***	-1.519*	.440	-.133	96.108***	90.8%	

*0.1 significance level. **0.05 significance level. ***0.01 significance level

Table 4 Logistic Regressions of Auction Success

5. DISCUSSION AND CONCLUSION

5.1 Discuss the finding from Auction Appeal

The different impact of neg/pos ratio on auction appeal in two products indicated maintaining a good reputation is of utmost importance for the experience goods' sellers. For sellers who primarily sell the search goods, should not focus their efforts on reputation since buyers would not be very sensitive to ratings. Rather, they should focus on how to build a good relationship with unknown buyers (contact intensity) and focus on providing detailed product's information (information richness). Auction length had no significant effect on number of bids (auction appeal) across all categories. Although the result is different with the pervious research (Lucking-Reiley et al. 2005), it is not surprising. The explanation is that most auctions last several days (average duration is 9.1 days for search goods and 8.82 for experience goods) and participants can bid at any time. Meanwhile, everyday, lots of new item have been post on the web, therefore, the longer duration may not always attract more bidders to place the bids. Because there are always lots of identical auction items to disperse bidders attentions.

Our study indicates that the BuyNow price, which has been viewed as seller-supplied reference price, has significant impact on auction appeal. When a seller provides a higher reference price, the number of bids (auction appeal) for the item significantly increased. This finding is consistent with research in the literature, which shows that as the level of an advertised reference price increases in a comparative price advertisement, consumers' purchase intentions (auction interest) increased (Compeau & Grewal 1998). For the Reserve price variable, our results shown that whether to set a reserve price or not has no impact on number of bids. One explanation is the presenting of reserve price is an unknown prices and always been shown in an unobvious place which lead bidders to ignore it easily. Therefore, the set of reserve price not always keeps the bidder away. Further more, the lower starting price has effect of attracting a larger spectrum of potential bidders on the auction. In the Supply and Demand dimension, the influence of Supply is significant and had negative impact on number of bids in the categories of experience goods, providing support for H9a. The influence of Demand is significant on number of bids in the categories of search goods, providing support for H10a.

5.2 Discuss the Findings from Auction Earning

Auction earning is increased by providing as much information as possible, particularly in regards to experience products. One explanation for non-significant impact of information richness on auction earning of search goods is that the buyers have prior knowledge about the product. As a result, the impact of incomplete information in the market may be small. The results also indicate that seller-supplied reference prices significantly influence on the auction earning (ending price). The set of reserve price will increase the ending price. The results is consist with Haubl and Popkowski (2000), who determined that reserve price led to fewer bidders, but higher selling prices. We hypothesized that starting price has positive impact on ending price. This finding is similar with Ariely and Simonson (2003) where starting prices lead to higher ending prices but only when comparable items were not immediately available in the same context. Gilkeson and Reynolds (2003) also found some conflicting results for starting price as a relative measure to final price for collectible items. In conclusion, the lower starting price may generate interest and build momentum, eventually pushing up the ending price, both for search goods and experience goods.

Comparatively speaking, the Search Goods seems not significant in lots of hypotheses than experience goods in auction earning. One possible explanation is the difference of product types. For search goods, we collect the MP3 Player, which is the most popular MP3 player brand in the market. Consumers therefore are higher prices sensitive. As long as the prices of auction item are higher than specific prices level, they'll then find another channel to purchase the product. Hence, the hypotheses associated with the ending price is not significantly supported in the majority. This implied that sellers

who selling the famous brand gain less auction revenues than less-known products. While conducting the business in online auction, product feature is the vital factors regarding revenues.

5.3 Discuss the Findings of Auction Success

Neg/pos ratio is found to have no impact on auction success. The result is similar with Gilkeson and Reynolds' (2003) findings. This suggests that reputation of the seller is not important in the case of auction success, particular in cosmetics and mp3 player product categories. To increase the auction success, keeping the communication channel open and provide complete information are substantial. Auction duration has no significant effect on auction appeal and auction earning, but it has negative effect on auction success for only search goods. This is opposite with what we hypothesis from the literature. Although inconsistency with pervious study (Lucking-Reiley 2000), the result hints that bidders for search goods are time-impatient and tent not to wait till last minute of longer duration auction. The BuyNow price is proposed as the role of reference price which helps buyer in product evaluations. Although the results show that BuyNow price indeed has impacts on auction success, it is opposite to what we hypothesized, which demonstrate a reverse influence.

Again, Supply and Demand is found to have no impact on auction success. By converting supply into dummy variable (auctions with HighSupply set to "1", otherwise set to "0") we made following conclusion (summarized in Table 5). Compared two products, we found the better combination of Supply (separated into HighSupply (HS) and LowSupply(LS)) and Demand (HighDemand (HD) and LowDemand (LD)) is HD+LS and HD+HS. This suggests that seller should set the auction ended in a high traffic period where more potential buyer spent their time on web.

Search Goods			Experience Goods		
	LS	HS		LS	HS
LD	33 ¹	23	LD	15	18
HD	44	35	HD	31	20
Total AS ²	135		Total AS	84	

1. While auction with LowSupply and LowDemand the number of auction success is 33, etc.
2. AS: Auction Success.
3. Search Goods: HD+LS (44) > HD+HS (35) > LD+LS (33) > LD+HS (23)
Experience Goods: HD+LS (31) > HD+HS (20) > LD+HS (18) > LD+LS (15)

Table 5 Comparison of High/Low Supply and High/Low Demand

5.4 Implications and Future Research

The above findings have both optimistic and pessimistic implications for the future of Internet auction market. The optimistic implication is that more and more individuals conduct business on e-auction demonstrating that the popularity of Internet in Taiwan. E-auction certainly provides a big opportunity for lots of people conducting business with low cost. As an individual decides to use auctions as a selling channel, they must make several important strategical decisions, such as which items to auction, how to set the auction parameters, and what information to disclose to the participants. This research develops a model of how auction sellers can set up auctions to maximize potential sale price and overall auction interest, and lead to auction effectiveness. Clearly, our study has obviously marketing benefits for either individual sellers or the new small business emerging from this new channel of distribution.

The negative implication lies in the findings that most sellers tend to sell their products in fixed price. It violates the traditional auction feature – playfulness. We suggest that sellers should notice that auction is one of the dynamic pricing mechanisms. It provides a market for sellers adjusting pricing strategies and optimizing selling revenue. If the sellers omit the specific features in online auction, the online auctions will become another B2C websites and struggle with the price war.

This study highlights some opportunities for future research. In general, future research may include more product categories and assess whether the different product categories is needed to adopt distinct selling strategy. Several selling strategies are currently being adopted in online auction market. They are all result in different economic consequences. Further research is needed to understand seller's motivations in adopting these strategies. Also, the multi-item auction is now popular in e-auction, we examined only the single item auctions, future research can further investigate the issue of auction effectiveness in multi-item auctions. We expect our selling strategy of seller to provide a basis for further research.

5.5 Conclusion

The Internet has been renowned for its great potential to reduce and eliminate competitive barriers. Individuals wishing to sell products can avoid the prohibitive costs of setting up a brick and mortar shop, finding a good location, and advertising. The present study constructs an overall model and tried to provide the best selling strategy for individual (auction seller) to increase the selling performance. The examination of the relationship between the seller characteristics, auction parameters and variation of supply and demand with auction effectiveness is based on previous research with the viewpoint from the marketing, economic and information disciplines.

This study is exploratory in nature and provides interesting results while raising additional explanations about why certain factors thought to influence auction effectiveness had no significant results and highlights the role of product characteristics. By examining two product features (search goods and experience goods), this article provides sellers with the idea about how to adopt different strategies while dealing with different types of products for increasing the auction performance in general. By conducting the following action, sellers are possible to increase their auction performance. First, the results provide clear evidence concerning the importance of starting price and BuyNow price when engaging in e-auction. Communication between buyer and seller, and information richness are proved having effects on auction effectiveness, however the effects are limited. Due to more and more sellers notice the HighDemand effect. The suggestion for the sellers as follows: while posting auction items ended in high traffic period, one thing must know is that there will be more the same auction items on the web list. Buyers, therefore, have more choices to get more information about the items and made precise evaluation and decision. As a result, by providing more reliable information and setting a lower Starting Price are essential for increasing the auction appeal and the possibility for products to be sold.

Auction practitioners, particularly sellers, can use the model we propose to gain insights into the nature of these strategies to determine how to improve benefits, and determine how these strategies changing bidding behavior. Although sellers sometimes may have difficulty estimating all of these factors, our results indicate that they do need to be concerned about some factors and try to conduct an appropriate and optimal strategy for better auction effectiveness regard with the concerning of success, ending price or being a focal product.

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