目錄

中文摘要 (Chinese Abstract)

近年來網路普及與網路拍賣低營運成本、低進入障礙的特性，使得有越來越多的人使用網路拍賣來進行交易，其中僅有少數線上拍賣賣家獲利。因此，瞭解線上買家的購買與再購行為，有助於賣家找出潛在的回流顧客，進而降低成本、增加營收，缺乏信任則是線上交易的另一項阻礙因素。因此，了解在線上拍賣中如何建立信任是一個重要議題，在這個研究中，我們主要討論線上拍賣的購買意圖，過去的研究裡有不同的觀點來討論購買意圖，但卻很少討論到詐欺以及社會影響，同時在這個研究中，我們藉由科技接受模式(TAM)、社會影響、詐欺控制、來討論這些變數是否會影響線上拍賣的再購買意圖

本研究以奇摩拍賣使用者為主要研究對象，結果也意味著，在網路上的拍賣者需採取差異化略策略來取得網路拍賣市場的購買意圖。

關鍵詞：線上拍賣, 科技接受模型(TAM model), 詐欺控制, 購買意圖

英文摘要(English Abstract)

Recent year, popularity of the internet and characteristics of low operating cost, low entry barriers, there has been more and more internet users using online auction for their transactions. But only few of online auction sellers are making a profit. Therefore, understanding the purchase and repurchase behaviors of online buyers can help sellers to identify potential customers' retention, hence, reducing costs and increase revenues. Lack of trust is identified as one of the barriers inhibiting online transactions. Thus, it is essential to understand how trust is created in online auction context.

In this study, we will focus on purchasing intention of online auction market. Many previous researches have been discussed about repurchase intention in different aspects, but very few of them use fraud control and social influence. At the same time, we are going to use Technology Acceptance Model (TAM) and antecedents as social influences, fraud control, to see whether these variables have impact on online auction purchase market or not.

Data collected from users in Yahoo online auction marketplace provide support for the proposed model. Test results can assist online auction providers and developers to have awareness in maintaining customer relationships with implications further discussed in this research.

***Keywords*:** Online auction market, TAM, Fraud Control, purchase intention

1. Introduction(前言)

1.1 Research Background

A lot of people use internet to do online-shopping, Consumer-to-Consumer(C2C) is one of the online-shopping channel , and it's the an electronic commerce business model that grew rapidly, But on this platform has many sellers and buyers, that means people can always have many choice to buy, in this case, we are going to see whether the social influences and fraud control can influence behavior or intention to use online auction market or not? Several literatures have been talk about it. Such as, Pandit *et al.* (2007) said that, at least 31% of Americans who have Internet access regularly participate in online auctions, accounting for a sizeable total of 35 million people. According to Internet Crime Complaint Center (IC3, 2006), here are several ways online auction fraud can occur: misrepresentation of a product for sale, non-delivery of merchandise or services sold, triangulation (fraudsters purchase items using a stolen credit card, selling the items to uninitiated buyers thereby retaining the cash and transferring the risk of seizure to the end recipient), fee stacking charging extra money after an auction is over), selling black market goods, multiple bidding (buyers inflate prices using aliases, which frustrates competitors, then at the last moment the high bids are withdrawn to secure a low bid), and finally shill bidding (sellers or their associates place bids on their own auctions for fraudulent purpose). Curry (2001) has been proposed several internet auction types as Table 1.

From the global fraud management (2013) perspective, fraud continues to migrate from more secure to less secure regions and channels. This obvious shift is accelerated by an increasingly adept and organized criminal community that seeks to exploit security vulnerabilities and commit fraud. Criminals are targeting not just unmonitored, stand-alone, point-of-interaction devices, but also launching sophisticated attacks on the private networks of well-known entities, such as major data processors and top-tier merchants. All of these factors can lead to fraud attacks that can cause erosion in confidence and global acceptance as financial institutions seeking to avoid risk may move to block transactions at a country or regional level. Current global view need a holistic approach to enjoin close collaboration with software engineers to make more easy access of auction market payment service, at the same time improve the web design from the perspective of users which must be easy to use step by step rather than making difficult design which will make confused users. Same time, need to improve more advance stages to control fraudulent in online auction market which can increase consumers' confidence level in online auction market.

Table 1. List of Internet Auction Fraud Type

Fraud type	Description
Shilling	Seller bids on own auction to drive up its price.
Bid shielding	Two bidders collude on an auction: One makes a low bid, while the second makes an inflated bid. Seconds before the auction ends, the high bidder withdraws.
Misrepresentation	Seller intentionally describes an item incorrectly.
Fee stacking	Seller adds hidden costs such as handling charges to the item after the auction ends.
Failure to ship	Seller never sends the goods.
Failure to pay	Buyer never sends the money.
Reproductions and counterfeits	Seller advertises counterfeit Goods as the real thing.
Triangulation/fencing	Stolen goods are sold.
Buy and switch	Buyer receives merchandise, but switches original merchandise with inferior merchandise before refusing and returning it.
Loss or damage claims	Buyer claims item was damaged and disposed of; buyer wants money back.
Shell auction	Seller sets up auction solely to obtain names and credit cards.

Source: Curry 2001

1.2. Research Objectives

When the user feel less risk and more secure, it may establish long-term relationship with the provider, However social influence to increase the attitude and intention The broad objective of this study is based on the statements above, we plan to propose the new acceptance mechanism using a TAM model in the online auction area and discuss the following points:

(1) Using the new approach, fraud control, social influence and TAM model, to investigate attitude and intention in on-line auction.***(New)***

(2) Which cause a consumer to make a purchase at an auction website on his/her first visit.***(Important)***

2. Literature Review(文獻探討)

Online auction sites such as (eBay) and (TradeMe) allow goods and services to be bought and sold online anonymously. The most common type of online auction is the English auction (Menezes and Monteiro, 2008), where bids are placed in ascending order, are publicly observable, and the winner is the final bidder with the highest bid. In 2011, there were 90 million active users in eBay (Shen and Sundaresan, 2011), with more than 170 million concurrent auctions (Auction Count Charts). Dishonest users will also disguise themselves to avoid detection by imitating normal

behaviors (Chang and Chang, 2011), making fraudulent behavior difficult to define. Past research in online auction fraud has focused on detecting specific fraudulent behaviors using a range of techniques, including decision trees (Chang and Chang, 2011; Almendra, 2013), clustering (Chang and Chang, 2010), regression models (Kauffman and Wood, 2003), statistical methods (Trevathan and Read, 2007a) etc.

2.1. Technology Acceptance Model (TAM)

Prior researches in understanding consumer's purchase intention using only TAM or integrate TAM model, there are not many researches consider social influence, fraud control and TAM model.

TAM (Davis1989; Davis et al.1989) was created to explain how users accept and use technology tools. TAM is based on the theory of reasoned action (TRA) (Ajzen and Fishbein1980), whose goal is to predict customers' behavior based on their behavior intentions and attitudes It is done by analyzing the relationships among convictions, attitude, intention and behavior. The variables predicted by TAM are the following: perceived usefulness (PU), perceived ease-of-use (PEOU), attitude towards behavior(A), and behavioral intention(BI). The PU is the degree to which a person believes that using a particular system would enhance his/her job performance. The PEOU indicates the degree to which a person believes that using a particular system would be free of effort.

This research model adopted the TAM belief–attitude– intention–behavior relationship, so the following TAM hypothesized relationships were proposed in the context of online auction market:

H1a: Perceived usefulness positively related to attitude toward using online auction market

H1b: Perceived usefulness positively related to behavioral intention to use online auction market

H2a: Perceived ease of use positively related to perceived usefulness

H2b: Perceived ease of use positively related to attitude toward using online auction market

H3: Attitude toward using online auction market is positively related to behavioral intention to use online auction market

2.2. Social Influence

Social factors profoundly impact user behavior. Social influence refers to how an individual in a social network is influenced by the behavior of others to conform to community behavior patterns (Venkatesh and Brown, 2001). Several theories suggest that social influence is crucial in shaping user behavior. For example, in TRA, a person's behavioral intentions are influenced by subjective norms as well as attitude. Innovation diffusion research also suggests that user adoption decisions are influenced by a social system beyond an individual's decision style and the characteristics of the IT. Additionally, TRA, and related theories provide the theoretical bases for

the hypothesized relationship between social influences and user behavior. Empirical studies based on (Karahanna and Detmarb, 1999) theories have found that social influences positively affect an individual's behavior. TAM's referent theory (i.e., TRA) includes social influence via a construct called subjective norm. Much prior research in psychology (See Ajzen 1991 for a review) found subjective norm to be an important determinant of intention and/or behavior. In fact, there is a significant body of evidence outside the domain of information systems in general supporting the viewpoint that social influence does indeed play a critical role in influencing behaviors in a wide variety of domains (Venkatesh and Morris, 2000). Thus, the following hypotheses were proposed:

H4a: Social influences theory is positively related to attitude toward using online auction market

H4b: Social influences theory is positively related to behavioral intention to use online auction market

2.3. Fraud Control

From previous literature review, where fraud has different categories, and which can affect customer's intention to online auction market. Without proper security measure (e.g. seller authentication), it is very easy for someone to pretense as someone else, thus luring an unsuspecting buyer into a fraudulent transactions (Neumann, 1997). Information asymmetry can also lose the trust such as opportunistic behavior as misrepresentation of product quality which can mislead or even market failure (Akerlof, 1970). In an effort to reduce the number of fraudulent transactions, many online services have emerged, geared towards providing information in sellers' reputation, such as Bizrate.com, eBay's Feedback Forum and the product review site Epinions.com (Ba and Pavlou, 2002). Thus, we can say that on online transaction systems Fraud control can positively affect attitude toward using online auction market and intention to online auction market. If a system is more pure, and which can provide easy and more secure way to access online auction market payment systems, which can build customers' trust by controlling fraud in online auction transactions on the sophisticated systems. Thus we can hypothesize that:

H5a: Fraud control is positively related to attitude toward using online auction market

H5b: Fraud control is positively related to behavioral intention to use online auction market

3. Research Method(研究方法)

3.1. Research Model

In this model we use Technology Acceptance Model (TAM), which is adapted from Davis. *et. al.* (1989); and we have extended this model by social influences and fraud control antecedents.

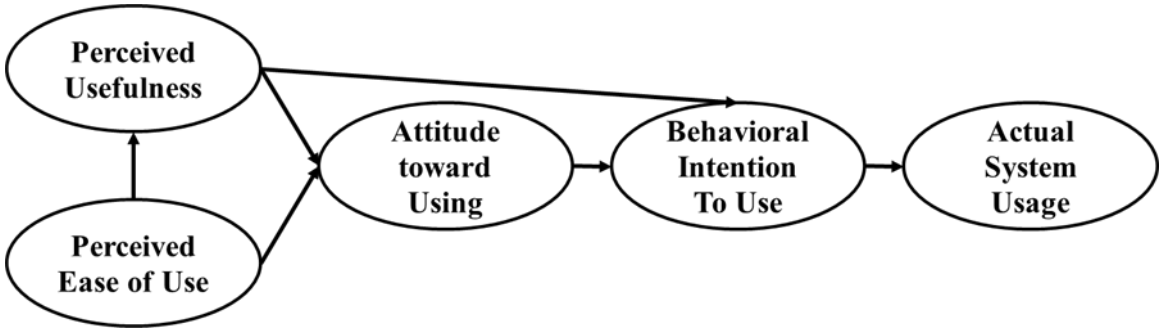

Figure 1. Technology acceptance model (Davis *et al*, 1999)

From the above discussion that, fraud control is a major issue towards buyers' intention to use online market. We are going to use TAM model (Davis *et. al.*, 1989). Computer systems cannot improve organizational performance if they aren't used (Davis *et. al.*, 1989). Unfortunately, resistance to end-user systems by managers and professionals is a widespread problem. To better predict, explain, and increase user acceptance, we need to better understand why people accept or reject computers. This research addresses the ability to predict peoples' computer acceptance from a measure of their intentions, and the ability to explain their intentions in terms of their attitudes, subjective norms, perceived usefulness, perceived ease of use, and related variables. In this model, we have added two extra antecedents i.e., social influences and fraud control.(See Figure 2. Research model) We want to see, how social influences and fraud control do affect customer's intention to use online auction market.

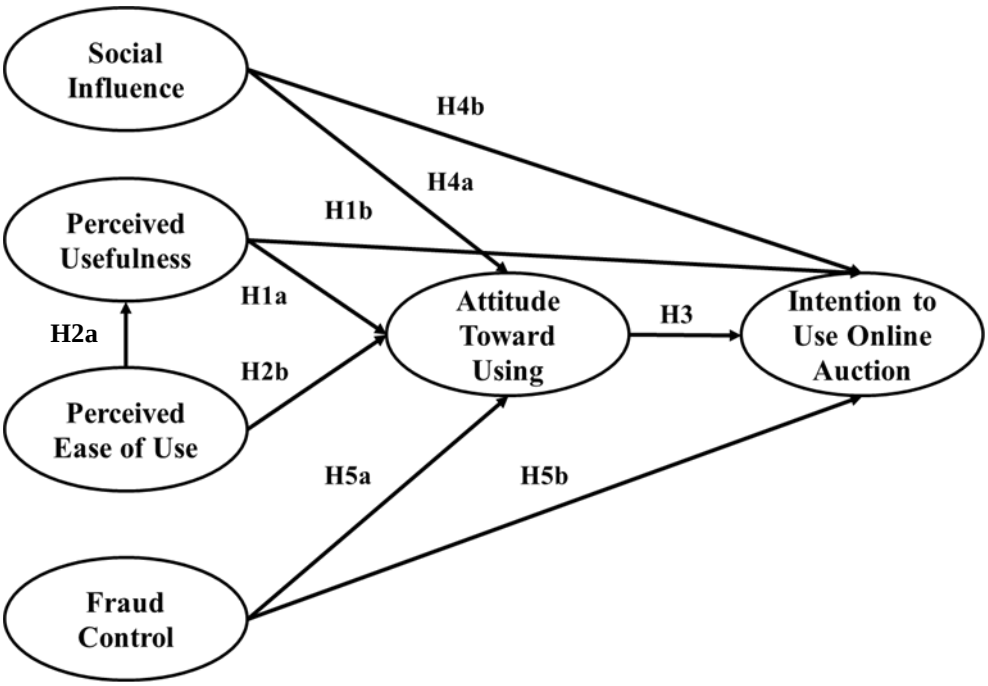

Figure 2. Research Model

3.2. Research Method

Data Sample has been collected from Taiwan Yahoo Auction Market (http://tw.bid.yahoo.com/) and Ruten Auction Market (http://www.ruten.com.tw/). The questionnaire has been including items of perceived usefulness, perceived ease of use, perceived risk, social factors and fraud control in the research model. Yahoo is chosen because its website is, together with Ruten auction among the most widely used internet auction sites in Taiwan (MIC Report, 2013). Questionnaire is consisted of Likert-type scale and will be divided into two parts, namely, demographic data and main survey.

The domain of the relevant construct will be initially specified, and the items are subsequently developed based on the former literature. All items are seven-point, Likert-type scales anchored at "strongly disagree" (1), "strongly agree" (7), and "neither agree nor disagree" (4). All the numbers of measurement items and adapted from of each construct used in this survey are list in Appendix 1.

4. Research result(研究結果)

4.1. Data Collection

Data were collected from yahoo-auction and Ruten which are the largest online auction operator in Taiwan, the respondents based on their experience by using yahoo online auction, 367 responses were collected. After deleting 36 invalid responses, 331 remains, showed valid rate of 90.2%. The final sample consisted of 45.6% male respondents and 54.4 female respondents. Approximately 45.9% of the respondents are between 26 and 35 years of age, and more than 72.5% of the respondents have more than half year to year of using online auction experiences. Approximately 35.6% of the companies are in student, Table 1 shows the characteristics of the respondents and sampling respondents.

Table 1. The characteristics of the sampling respondents

Item	Description	Count	Percent	Item	Description	Count	Percent
Gender	Male	151	45.6	Occupation	Student	118	35.6
	Female	180	54.4		Public servants	35	10.6
Age	16-20	20	6.0		Service industry	69	20.8
	21-25	140	42.3		Manufacturing	46	13.9
	26-35	152	45.9		information	20	6.0
	36-45	11	3.3		Others	43	13.0
	More than 45	8	2.4	Education	High school	14	4.2
Experience	Below half year	12	3.6		University and College	209	63.1
	Half year to a year	240	72.5		Master degree and above	108	32.6
	One year to two years	42	12.7	Count of Online auction	0	5	1.5
	Two years to three years	35	10.6		1-5	164	49.5
	Others	2	0.6		6-10	90	27.2
					11-20	48	14.5
					21-50	15	4.5
					More than 51	9	2.7

4.2. Data Analysis

Following the two-step approach recommended by Anderson and Gerbing (1988), we first examined the measurement model to test reliability and validity. Then we examined the structural model to test and model fitness and research hypotheses

First, we conducted a confirmatory factor analysis (CFA) to examine the validity. Validity includes convergent validity and discriminant validity. Convergent validity measures whether items can effectively reflect their corresponding factor, whereas discriminant validity measures whether two factors are statistically different. Table 2 lists the standardized item loadings, average variance extracted (AVE), composite reliability (CR) and Cronbach Alpha values. Most item loadings are larger than 0.7. All AVE exceed 0.5 and all CR exceed 0.7. Thus the scale has a good convergent validity (Bagozzi and Yi, 1988; Gefen *et al.*,2000). In addition, all Alpha values are larger than 0.7, showing a good reliability (Nunnally, 1978).

Table 2. Standardized item loadings, AVE, CR and alpha values

Factor	Item	Standardized loading	AVE	CR	Cronbach's α
Social Influence	SI1	0.828			
	SI2	0.967	0.8103	0.8947	0.915
	SI3	0.860			
Perceived Usefulness	PU1	0.910			
	PU2	0.860			
	PU3	0.935	0.7839	0.8787	0.878
	PU4	0.742			
	PU5	0.810			
Perceived Ease of Use	PEU1	0.845			
	PEU2	0.935			
	PEU3	0.779	0.7317	0.8905	0.883
	PEU4	0.712			
	PEU5	0.771			
Fraud Control	FC1	0.900			
	FC2	0.904	0.7815	0.9147	0.913
	FC3	0.847			
Attitude Toward Using	ATU 1	0.921			
	ATU 2	0.962	0.8905	0.9702	0.970
	ATU 3	0.958			
Intention to Use Online Auction	IUA 1	0.950			
	IUA 2	0.941	0.8903	0.9799	0.960
	IUA 3	0.902			

To examine the discriminant validity, we compared the square root of AVE with factor correlation coefficients. As listed in Table 3, for each factor, the square root of AVE is larger than its correlation coefficients with other factors, showing a good discriminant validity (Fornell and Larcker, 1981; Gefen *et al.*, 2003).

Table 3. The Square root of AVE (Shown in italics at diagonal) and factor correlation coefficients

	SI	PU	PEU	FC	ATU	IUA
SI	0.992					
PU	0.882	0.927				
PEU	0.710	0.788	0.905			
FC	0.700	0.750	0.816	0.882		
ATU	0.723	0.795	0.733	0.694	0.900	
IUA	0.641	0.661	0.642	0.635	0.753	0.884

Second, we employed structural equation modeling (SEM) software AMOS to estimate the structural model. Table 4 lists the recommended and actual values of some fit indices. Except GFI, other fit indices have a better actual value than the recommended value, showing a good fitness (Gefen *et al*., 2000).

Table 4. Goodness-of-fit measures of the research mode

Fit indices	chi2/df	GFI	AGFI	CFI	NFI	NNFI	RMSEA
Recommended Value	<3	>0.90	>0.80	>0.90	>0.90	>0.90	<0.08
Actual value	6.452	0.902	0.823	0.922	0.913	0.925	0.074

Table 5 lists the path coefficients and their significance, the effect of perceived usefulness, perceived ease of use and fraud control and intention to use online auction were significant: Perceived Usefulness → Attitude Toward Using, Ease of Use →Perceived Usefulness, Attitude Toward Using →Intention to Use Auction, Thus, Social Influence → Attitude Toward Using, Fraud Control → Attitude Toward Using, Fraud Control → Intention to Use Auction. It was not possible to reject those hypotheses. On the other hand, hypothesis H1b, H2b and H4b had to be rejected because it did not show sufficient statistical significance on trusting behavior.

Table 5. Path coefficients and their significance

Hypothesis	Path	Coefficient	Supported or not
H1a	Perceived Usefulness → Attitude Toward Using	0.673***	Support
H1b	Perceived Usefulness → Intention to Use Auction	-0.034	Not Support
H2a	Ease of Use →Perceived Usefulness	0.362***	Support
H2b	Ease of Use → Attitude Toward Using	0.065	Not Support
H3	Attitude Toward Using →Intention to Use Auction	0.432***	Support
H4a	Social Influence → Attitude Toward Using	0.310***	Support
H4b	Social Influence → Intention to Use Auction	0.008	Not Support
H5a	Fraud Control → Attitude Toward Using	0.393***	Support
H5b	Fraud Control → Intention to Use Auction	0.352***	Support

Notes: *p <0.05; **p< 0.01; ***p<0.001

5. Conclusion(結論)

5.1. Conclusion

This study investigates attitude and intention to use online auction of online auction actors by applying fraud control, social influence and TAM model.

The results indicated that fraud control has significant effects on attitude and intention, the other hand, social influence and usefulness have significant effect on attitude. There are three factors social influence usefulness and ease of use which has no significant influence on attitude and intention to use online auction in the online auction context. We thought maybe the social influence and usefulness of online auction context didn't clear affect intention to use auction, and the result also be understood by the fact that the importance of usefulness and ease of use is decreasing because it is becoming known that usefulness and ease of use are basic function for online auction.

From a managerial perspective, the research model proposed in this result indicated that interaction within a social context could raise attitude for use. That means some social interaction (e.g. Q&A interaction) helped establish dyadic relationships for attitude and intention. The results imply web site managers must be ever cognizant of influence among auction actors and effect of social influence on online auction.

5.2. Limitation

First of all, the issue about using fraud control and social influence on online auction from the whole view is a new and few studies have discussed that, especially using theoretical model in practical environment. This makes it more difficult to apply the questionnaire in Yahoo auction users (as the sample targets of this study) since they have not experienced this kind of questions before and will hesitate to reply. The study will describe and explain what and why this survey is in details on the guidelines of questionnaires.

Second, the subjects of this research are yahoo online auction websites, and other websites providing the same products or services were excluded. To investigate this topic more deeply, researchers can take other online auction websites into consideration to verify the relationships among these variables. Third, the generalization of the results is limited by the context of online auction in Taiwan, all of the observations were from Taiwan and online auction websites in other countries may not be similar with Taiwan.

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