

IMPROVED CREDIT EVALUATION SYSTEM OF TAOBAO COMPANY

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ABSTRACT

Electronic commerce (E-commerce) has been very popular in recent years. The society of the world is becoming to the information age; and the e-commerce become to the new growth spot in the new internet industry. However, because the impersonal nature of online-trading and untruth information, it makes the e-commerce more difficult to build a trust between sellers and buyers than in traditional market. One of the e-commerce development restrict is the lacking trading-credit. The components of this thesis are including marketing theories, risk theories, morality theories and credit evaluation system to research the basic notion of the credit risk, the effect of credit risk in e-commerce on online-trading, and credit evaluation system. Then, creating a credit evaluate model to analyze the advantages and compare with TaoBao's credit system to make sure the model has more effective credit evaluation information for the TaoBao company.

ABSTRAK

Electronic perdagangan (e-perdagangan) sangat popular pada masa sekarang. Masyarakat dunia menjadi ke era maklumat dan e-commerce menjadi ke titik pertumbuhan baru di industri internet yang baru. Namun, kerana sifat impersonal online-trading dan kepalsuan maklumat, itu membuat e-commerce lebih sukar untuk membina kepercayaan antara penjual dan pembeli dari pasar tradisional. Salah satu perkembangan e-commerce adalah kurang menghadkan perdagangan kredit. Komponen-komponen daripada tesis ini meliputi teori-teori pemasaran, teori risiko, moral teori dan sistem evaluasi kredit untuk kajian pengertian dasar dari risiko kredit, kesan daripada risiko kredit melalui e-commerce di talian-perniagaan, dan sistem evaluasi risiko kredit. Jika tidak, mencipta model menilai kredit menganalisis keuntungan dan membandingkan dengan yang benar-benar ada sistem kredit untuk memastikan model mempunyai lebih berkesan maklumat evaluasi kredit untuk e-commerce.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

E-commerce means a series of business and commerce that use modern electronic information technology, especially use internet technology. It is the new trading model that grown up in western world in ninetieth of twenty century. The feature of e-commerce is purposing online-trading base on internet environment. In the developing global economy, e-commerce has become to a necessary element of business strategy and a strong catalyst for economic development; the integration of information and communications technology (ICT) in business has revolutionized relationships within organizations and those between and among organizations and individuals (Chen Zhihao, 2003). Specifically, the use of ICT in business has enhanced productivity, encouraged greater customer participation, and enabled mass customization, besides reducing costs (Zhen Wenhong, 2000). Following the lawmaking and consummation of e-commerce, and the development of safe-key of internet, can build a good business environment of e-commerce, and also can create a

“level playing field” for internet enterprise of any size (Wei Mingxia, 2001). However, throughout the practice in so many years, e-commerce has taken the value that should be expected. The mostly point is the main stakeholders in e-commerce cannot trust each other.

1.2 Background of Problem

According to the estimates of International Data Corp (IDC) (2004) we can see the value of e-commerce has increased very fast, in 2000 the value of global e-commerce is US\$350.38 billion; and then was projected to climb to as high as US\$3.14 trillion by 2004. IDC also predicts an increase in Asia’s percentage share in worldwide e-commerce revenue from 5% in 2000 to 10% in 2004. Asia-Pacific e-commerce revenues are projected to increase from \$76.8 billion at year-end of 2001 to \$338.5 billion by the end of 2004 (Zorayda Ruth Andam, 2003).

However, recently, the development of e-commerce faces to some threats, those threats result in the e-commerce developed very slowly, is not because absence the model of payoff, but it is the loss of the trust. The e-commerce credit risk is more and more important; credit risk is becoming to the key point of baffling consumer’s online-trading (JvarePnaaetal., 2000; Baetal., 2000). Some enterprises that spent a tremendous financing in built an e-commerce establishment have try to find the way to build the credit and force the online-trading for receive the cost, make payoff and advance the development of the enterprise. But the results are not satisfaction, because the e-commerce activities are through the space-time, the credit risk is more

sense to the organizations' and individual's online-activity and performance (Tadesli, 1999).

Dummy market (or electronic market) is the market that basing internet and relative to the traditional market; it is the typical "stranger" social. Its universality, changing records, complex entities and dummy are make its credit problem is more important than traditional market; the trader easier to trend to lie each other, because this losing credit action has low risk, but the income is satisfactory. Following the cheat is more popular in the e-commerce, the losing credit; the credit conjuncture and the problem of deteriorating the situation of trust are more and more graveness (Zorayda Ruth Andam, 2003).

According to the eighteenth research report (2006) from China Network Information Centre (CNNIC), China has 300 millions internet consumers, as a quarter of the netters. Compare with 2005, there were raising 50% of the internet consumers. But there were 71.1% netters who do not have the experience of online-trading do not trust the online-trading. From the "Hotspot research report" of CNNIC (2004.11), it surveyed the netters' online-trading. In the multi-select question of "Distribution of the reasons of having not attempted the network shopping", the main results of the netters who do not have the experience of online-trading are: don't trust the web, worry about the quality of commodity and the after service, oppugn the safety, and worry the way of payment, it show in the Figure.1.1 (CNNIC, 2006). However, some netters had already to try online-shopping, but they gave up because the too fussy process to balance and have to fill too much information (CNNIC, 2006).

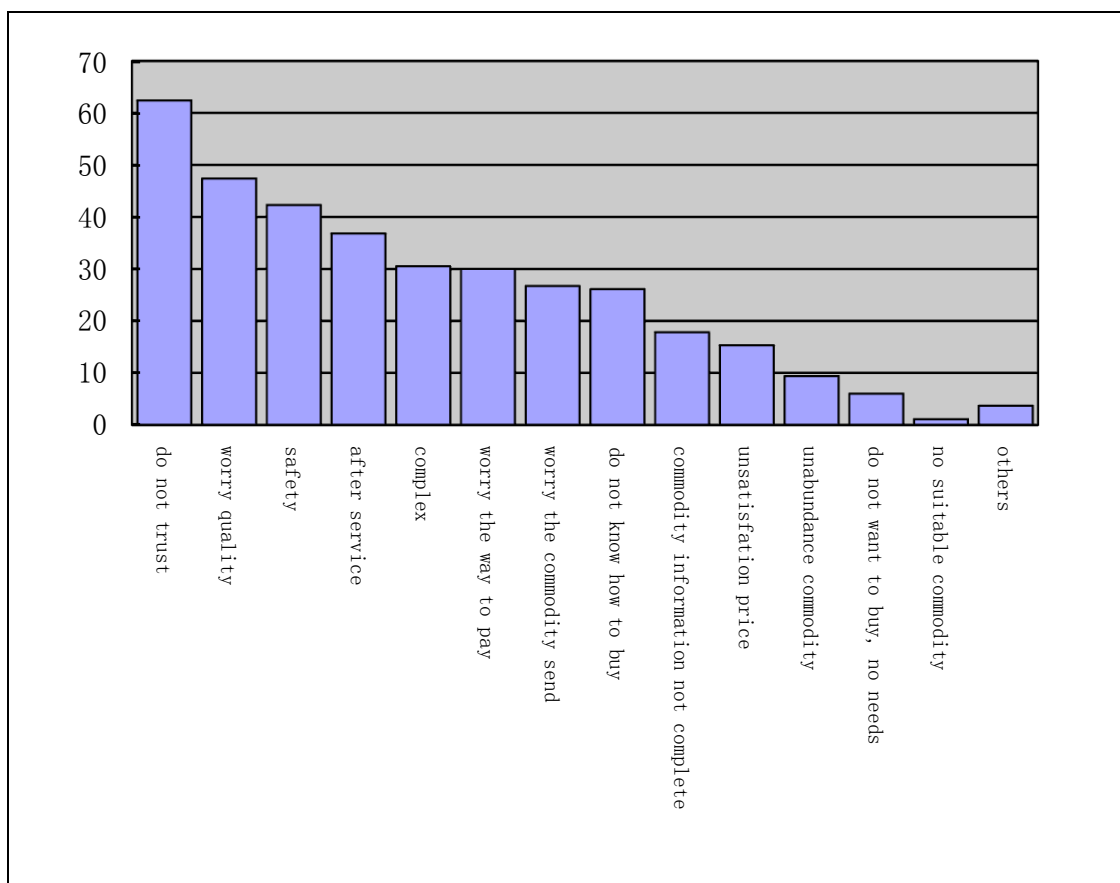


Figure 1.1 Distribution of the reasons of having not attempted the network shopping
(CNNIC, 2006)

The main point of the problem of online-trading is lacking an effective e-commerce credit system, especially the personal credit system, to control the online-trading credit risk. So, it is very urgent to investigate the e-commerce credit evaluating system, keeping advance the current credit situation.

1.3 Statement of Problem

Credit system exists in the West developed countries has more than 160 years history, the importance of credit value in depth people's lives. Herbig, Meliwicz (1994) had discussed the concept of credit model in 1994s. Tadelis, in 2001, said that credit is the exchangeable assets and also is promoting.

But after so many years of development, credit issues remain a major problem that affecting the development of e-commerce. The e-commerce credit risk is also not very clear, people do not know where it happens and how to avoid; because the current credit evaluating system is still too vague to analysis the stakeholders who do the transaction in e-commerce credit.

Due to the above problem, it is urgency to have a clear credit evaluating system that can support a good credit environment of online-trading, furthermore, to advance the development of e-commerce.

1.4 Objectives

The objective of this project is providing useful information for reducing the online-trading credit risk, and to help the people or organization to enjoy the online-trading; consequently advance the development of e-commerce.

To achieve the above objectives, there sub-objectives should be formulated are:

- i. To analyze the e-commerce credit risk.
- ii. To evaluate the C2C credit evaluation system.
- iii. To design system for reduce credit risk of TaoBao system.

1.5 Scope

This project represents a systematic analysis approach for evaluate the credit risk of online-trading. It is the oriented can help consumer sensing and avoiding the credit risk of online-trading, for advance the development of e-commerce in some aspects. This research covers:

- i. E-commerce credit risks mechanism.
- ii. C2C operating system and credit evaluating system.
- iii. Case study of TaoBao credit evaluating system.
- iv. This credit evaluating system is developed based on web-sites design application and windows environment.

REFERENCES

- Boehm B (1988), "A Spiral Model of Software Development and Enhancement", "Computer", "IEEE", 21(5):61-72.
- Bian Xiaohong. (2006) "The research of online company credit risk analysis base on fuzzy method". *Working paper*.
- Chen Zhihao. (2003) The analysis of e-commerce development factors (J) .*economic management*.
- Che Chun. (2005) "The research of e-commerce credit risk base B2B model". *Xi An electronic technology university*.
- Cheltenham Courseware Pty. Ltd. (2008) Microsoft project 2007, manual foundation level.
- Chi Guotai, Xu wen, Sun Xiufeng. (2006) "The research of individual credit card risk evaluation structure and model". 34:4.
- China Network Information Center (CNNIC). (2004) *The fifteenth research report*.
- China Network Information Center (CNNIC). (2006) *The eighteenth research report*.
- China Network Information Center (CNNIC). (2009) *The twentieth research report*.
- Definition adapted and expanded from Emmanuel Lallana, Rudy Quimbo, Zorayda Ruth Andam, ePrimer (2000): An Introduction to E-Commerce.
- David Braun, Jeff Sivils, Alex Shapiro, Jerry Versteegh, (2000) Unified Modeling Language (UML) Tutorial.
- Dorre, R. (1987) Taking Japan seriously, Stanford university, stanford.
- Doney, P.M. and Cannon, J.P. (1997) An examination of the nature of trust in

- buyer-seller relationships. *Journal of Marketing*. 35-51.
- Fei Jianping. (2009) The research of e-commerce credit risk impact of online-trading activities mechanism. 31.0053:f830:A.
- Fukuyama.F. (1995) *Trust: The social virtues and the creation of prosperity*. NewYork: Free Press.
- Fombrun,C. and Shanley, M. What's in a name? Reputation building and corporate strategy. *Academy of management journal*. 233-258.
- Fung, R., and Lee, M. (1999) EC-Trust: Exploring the antecedent factors, *Proceedings of the 5 Americas Conference on Information Systems*.
- Goldman Sachs Investment Research, November (1999). "E-commerce/Internet: B2B:
- Gefen, D. (2000) E-commerce: The role of familiarity and trust.Omega: The international *Journal of management science*, 28. 725-737.2B or Not 2B?" v. 1.1, 16, 68-71.
- He Zhongxiong. (1985) *Fuzzy method and application [M]*, TianJin University publish.
- Herbig, p. Milewicz, J. (1994) A model of reputation building and destruction. *Journal of Business Research*, 31. 23-31.
- IEEE Standard Computer Dictionary (1990): *A Compilation of IEEE Standard Computer Glossaries*; IEEE; New York, NY.
- Jin Xiaohong. (2007) *The Study of Electronic Business Credit Evaluation Mode* , 4.
- Jiang Lingming. (2003) The current situation Search of China E-commerce. *Business Research*. 38.
- Kollock, P. (1999) The production of trust in online markets. pp. 99-123.
- Kotkin,J. (1998) The mother of all malls. *Forbes*. 60-65.
- LuHongyan, WeiXin. (2007) *C2C network market credit system comparing [J]*.
- Liu Youcai. (1996) *Principle and Design of Fuzzy Expert system*. BeiJing: Publishing house of beijing university of aeronautics and astronautics.
- Li Huibing, Yang Dongxue. (2000) *Social economic and business*.

- Liao Chenglin. (2003) The mechanism of credit lose. 7-9.
- Resnick,P, and Zeckhauser,R. (2001) Trust Among Strangers in Internet Transactions:Empirical Analysis of eBay's Reputation System. NJ. Retrieved. (2007) "Wordreference.com: WordNet 2.0". Princeton University.
- ShaoBingjia, LiRu. (2006) Online-trading websites credit evaluation system investigation [J].
- Stewart, K.J. (1999) Transference as a means of building trust in world web sites. The proceedings of ICIS. 12-15.
- Swan, J.E. and Nolan, J.J. (1985) Gaining customer trust: A conceptual guide for the salesperson. Journal of personal selling&sales management. 39-48.
- Shi Liangping. (2003) Business bank credit risk management [J]. 15-16.
- The Eighteenth Research Report from China Network Information Centre (CNNIC), 2006.
- Tadelis. (2001) The Market for Reputation as an incentive mechanism. Journal of Political Economy.
- Tian Shuanglin. (2009) The weight setting of credit rating indicators structure [J]. 12-14.
- Zeng Yong. (2004) The research of E-commerce credit evaluation. *Wu Han university*.
- ZhuXiaozhong, ZhangZongyi, GenHuadan. (2004) Modern credit risk model analysis [J]. financial research. 33-46
- Zorayda Ruth Andam. (2003) E-commerce and e-business book.
- Zhao Xiaodong, Zhen Tao, (2003) personal credit rank evaluation model based fuzzy-AHP evaluation method [J], 6.
- Zhang Huifang. (2002) The development of E-commerce in three parts. 33-36.
- Zhen Wenhong, Li Jian. (2000) The impact of credit of market. economic management.2
- Wei Mingxia. (2001) The analysis of marketing game. 4
- Whitmeyer, Joseph M., (2000) Effect of positive peputation systems. Social science

research. 188-207.

Wen Xing. (2007) Information technology and online-trading. NanJing university.

WEBSITES:

<http://www.tab.fzk.de/en/projekt/skizze/e-commerce.htm>; Internet; accessed 2009 September.

<http://hi.baidu.com/chuhan1234/blog/item/9fc2f54f7b25243eaec3abe1.html> Internet; accessed 2009 September.

http://searchcio-midmarket.techtarget.com/sDefinition/0,,sid183_gci755441,00.html.
Internet; accessed 2009 September.

<http://www.doh.state.fl.us/irm/Apps/sdstandards/isdm/Design.pdf>. Internet; accessed 2009 September.

<http://www.uml.org.cn/Test/200908206.asp>. Internet; accessed 2009 September.

http://atlas.kennesaw.edu/~dbraun/csis4650/A&D/UML_tutorial/what_is_uml.htm;
Internet; accessed 2009 September.

http://www.nb-020.com/News_Detail.asp?id=30. Internet; accessed 2009 September.

<http://www.softwaretestingclub.com/forum/topics/is-integration-a-phase>. Internet;
accessed 2009 September.

<http://www.traderinasia.com/classifieds.html>. Internet; accessed 2009 September.

TA Project, (2002) <http://www.tab.fzk.de/en/projekt/skizze/ecommerce.htm>; Internet;
accessed 2009 September.

Traderinasia.com; (2002) <http://www.traderinasia.com/classifieds.html>; Internet.

wikipedia.com. <http://en.wikipedia.org/wiki/Methodology>. Internet; accessed 2009 September.

wikipedia.com. http://en.wikipedia.org/wiki/Systems_Development_Life_Cycle#History.
Internet; accessed 2009 September.

wikipedia.com. http://en.wikipedia.org/wiki/Waterfall_model. Internet; accessed 2009 September.

wikipedia.com. http://en.wikipedia.org/wiki/Spiral_model. Internet; accessed 2009

September.

wikipedia.com.http://en.wikipedia.org/wiki/Systems_Development_Life_Cycle#Build_or_coding. Internet; accessed 2009 September.

wikipedia.com. http://en.wikipedia.org/wiki/Unit_testing. Internet; accessed 2009 September.

wikipedia.com.http://en.wikipedia.org/wiki/Systems_Development_Life_Cycle#Build_or_coding. Internet; accessed 2009 September.

wikipedia.com. http://en.wikipedia.org/wiki/Microsoft_Office_2007. Internet; accessed 2009 September.

wikipedia.com. http://en.wikipedia.org/wiki/Adobe_Dreamweaver. Internet; accessed 2009 September.

wikipedia.com. http://en.wikipedia.org/wiki/MySQL#Platforms_and_interfaces. Internet; accessed 2009 September.