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Internal Control Effectiveness, Relationship Trading and Corporate Reputation

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Abstract: Different from the previous study of reputation impact on corporate performance, value assessment, and investment and financing behavior, this study turns to the signaling game model and the dynamic system model, analyzing the integrative mechanism of the governance mechanism (relationship trading) and the governance mechanism of internal control rules, and examining the impact of the interaction of the two different governance mechanisms on corporate reputation mechanism. Empirical results show that the increase of supplier/customer relationship trading has a significantly negative effect on corporate reputation mechanism. Further introduction of internal control mechanism has found that the improvement of internal control effectiveness has a certain inhibiting effect on the destruction of corporate reputation by relationship trading and will enhance corporate social image. The study shows that the maintenance of corporate reputation should focus on not only the reasonable choice of business trading mode, but also the optimization of internal risk management and the improvement of control environment.

Key Words: Internal control; Relationship trading; Corporate reputation; Immune mechanism; Accounting information

I. INTRODUCTION

As the commercial trade and long-term cooperation and trading between corporates in the market become more frequent and stable, "relation", as a tool to offer both corporates and suppliers/customers great convenience and efficient reciprocity, has been applied more widely into big deals by corporates. Relationship trading will make it more efficient for corporates to build integrated relationship and enhance cooperation between customers and suppliers, to lower trading costs, to enhance competitiveness in the industry and eventually achieve the win-win-cooperation goal, which is more important when, in the trading economy, the market price mechanism is less sound and the legal system is incomplete (Chen etal., 2009; Allen and Babus, 2008; Kong, 2011). However, ever-increasing relationship trading will restrain public financial disclosure. With the ever-deepening dependence on regularmajor customers/suppliers, a unique business model in which corporates are supported by relational special assets is gradually formed (Williamson, 1985; Dyer and Singh, 1998). Although they may obtain considerably expected earnings during a certain period of time, the increased concentration of customers/suppliers will strengthen their "bargaining power"(Baker et al.,2003). That will likely induce their opportunistic behavior like "hold-up" problem, increase their control over business to make profits and make business interests easier to be harmed (Poter,1991; Suutari,2000; Tang,2009). In consequence, the difficulty of controlling business risk is escalated and this will also have severe impact on corporate governance, accounting information quality, efficiency investment and other aspects (Bennedsen et al, 2007; Li et al., 2011; Jin and Myers, 2006),damage the image of corporates in the minds of the public, investors and the government concerned, and exert negative effect on corporate reputation mechanism.

In recent years, although there are scholars who have been investigating the influence of relationship management mechanism on corporates from perspectives such as inefficient investment, earning management and information transparency (Xu,et al., 2014, 2015; Fang &

Zhang, 2016), there is little literature searching the influence of corporate relationship management mechanism on its external reputation. Exposed is some untouched space for investigations of how business relationship trading induces various kinds of potential business and governance risks which will in turn reduce the public and investors' confidence in the sustainable development of corporates and consequently deteriorate corporate reputation. Therefore, the primary concern of this study is: Will relationship trading result in a decline in corporate external reputation? Will the reduction of relationship trading lower the risk of operation and governance to a certain extent, thereby restoring and enhancing corporate reputation? Faced with the more and more important relationship trading market form, how can corporates manage the expected benefit, the potential risk and the negative impact on their reputation mechanism that the relationship management mechanism brings?

The importance of the issue also lies in the fact that the dependence of corporates on relationship trading and the external social evaluation from the public are affected by a series of institutional environments, among which corporate internal control system is particularly important. Lado et al. (2008)found that the improvement of internal control will reduce the dependence on some major suppliers/customers, prompting relationship trading proportion to be reduced to relieve corporates' financing pressure and lower trading costs. Thus, the improved internal control effectiveness will strengthen information transparency simultaneously. The fluctuation of accounting information decreases (Doyle et al., 2007; Chan et al., 2008), the uncertainty of trading declines, and opportunistic behavior between suppliers/ customers and corporates weakens (Hwang, 2006). Thus it shows that the improvement of internal control effectiveness reduces potential risks brought to corporate caused by too much dependence on relationship trading, improves corporates' financial reporting quality and their management efficiency, enhances the bargaining power in negotiations with suppliers/customers, alleviates the financing constraints that may arise from relationship trading, and keeps investors and the public maintaining a more optimistic attitude toward the sustainable development and reputation of corporate with an eventually added-up value. The problem is whether findings in overseas research remains suitable in the special institutional background during the transitional period of China's economy (such as the progressive characteristics of corporate internal control construction, especially the fact that the drawback of the market system and the legal mechanism force relationship trading to be the main trading relations and the core of business for mincorporates)? There is no literature in China that views corporate internal control as an adjustment factor of the relationship between corporate relationship trading and its reputation mechanism, let alone considering about the linkage influence of internal risk management mechanism and relationship management mechanism on corporate reputation.

Based on the above analysis, this study takes the 2007-2016listed firms in Shanghai and Shenzhen stock exchanges as research samples and investigates the influence of relationship trading on corporate reputation and the regulating effect of its internal control effectiveness. It is significant in the following aspects. Firstly, the research literature on corporate reputation mechanism is enriched. This paper takes reputation mechanism as the foothold of research and investigates how, if there is any, the interweaving of the two rules (relationship rules and system rules) affects corporate reputation mechanism, which will extend the research literature on influencing factors of corporate reputation mechanism. Secondly, it has filled some study blanks of domestic researches on corporate relationship trading and its external reputation, especially in terms of the effects of internal control. This paper is based on the interconnection of internal risk management mechanism and relationship management mechanism, to study whether the improvement of internal control effectiveness can inhibit the negative impact of relationship trading on corporate reputation, and how effective it is, being greatly significant for corporates to restrain management, strengthen internal risk management, and reduce their dependence on major suppliers/customers. Thirdly, it further enriches the literature on internal control efficiency improvement. This paper investigates the influence of internal control on relationship trading and corporate reputation, providing inspiration for corporates to strengthen internal control governance and achieve improvement. It also offers empirical references for corporate rational layout and allocation of relationship trading resources, and the positive role of relationship trading in corporate reputation.

II. THEORETICALANALYSIS AND RESEARCH HYPOTHESIS

A. Relationship Trading and Corporate Reputation

In China's economy transition, the lack of legal protection and effective market is the main reason why corporates keep close relationship trading with suppliers/customers (McMillan & Woodruff, 1999). Especially in areas where there is slow marketization process, serious market segmentation and difficulty in free flow of products and factors, corporates are more devoted to supplier/customer relationship trading (Liu et al., 2007; Lin et al., 2014). Taking advantages of a relationship trading with "private trust" to reduce trading cost becomes an instinctive choice of business credit model in corporate (Kong, 2011). Corporates which in daily trading rely too much on relationship trading will find their internal information formation being affected, and simultaneously undertake the risk that their suppliers/customers will be able to squeeze them out of opportunism due to the suppliers'/customers' bargaining power improvement. These behavioral risks and results will have a certain effect on corporate reputation. Fomburn & Rindova (1996) first put forward the definition of corporate reputation, considering that corporate reputation is derived from its past actions, and that the results of these actions provide a signal of reference value and output ability for a corporate's stakeholders.

From the view of earning management, due to the long-term cooperation with major suppliers/customers, the communication between the two parties may rely more on private channels, rather than realizing effective control of trading process under the supervision of the open information platform (Ball et al., 2000). Meanwhile, in order to avoid the existing major suppliers/customers abandoning relationship trading with the corporate resulted from opportunism and turning to seek cooperation with its rivals which will bring the corporate high switching cost, the corporate usually meets its suppliers'/customers' expectations with excessive earning management and tries to lower its suppliers'/customers' perception of corporate risk which otherwise will lead to their making adverse changes to the terms of trading. Raman & Shahrur (2008) demonstrated that corporates tend to provide false promises to induce relationship trading, presenting the illusion of long-term performance improvement (Bowen et al., 1995). However, the improvement of corporate earning management will lead to the recognition by trading partners or other stakeholders and the rise of risk perception by the public and investors. Corporates' external reputation will decline due to this "negative impression" and will ultimately have a serious adverse effect on the performance and value of the corporates. Steven & Susan (2004) concluded that corporate earning management behaviors will affect the management's own reputation and weaken the role of the incentive mechanism on executive compensation restriction. An empirical study by Liu et al. (2014)found that an excessive earning management would damage corporate reputation mechanism. Francis et al. (2008) found that there is a significantly negative correlation between management reputation and earning quality. Apparently, in order to maintain major relationship trading with suppliers/customers, corporates usually take earning management to manipulate profits, improve earning management, which increases corporate risk, raises the risk perception of the public and outside investors towards the corporates, damages corporate reputation mechanism, and ultimately affects the corporates' business development.

Concerning information disclosure quality, in corporates with a large proportion of relationship trading, a long-term stable partnership between the two parties creates a unique "trust"; the two sides prefer to adopt private channel communication to replace high-quality information disclosure; and the reliance degree will also be low on information disclosure quality requirements about financial reporting (Klein et al., 1978). Meanwhile, information disclosure with complex network of relationships will induce higher proprietary cost (Cheng et al., 2012). In addition, suppliers/customers in a supply chain of relationship trading obtain sufficient information on the corporates' private information, which means that there is no need to exploit more information from the public information platform (Zhang et al., 2012). The incentives will also be weakened for corporates to generate high-quality financial information. However, low-quality financial information disclosure will increase information asymmetry between corporates and investors. Investors' lacking of confidence leads to higher external financing cost for corporates (Healy & Wahlen, 1999; Botosan, 1997). Insufficient information disclosure results in investors' failure in obtaining valuable information from corporate reputation mechanism. Therefore, the operation effectiveness of reputation mechanism is reduced. Consequently, corporate external reputation goes down (Hu, 2003). The above analysis shows that increased reliance on relationship trading will lower the incentive to disclose high-quality information. Thus, the degree of information asymmetry between corporates and investors will be increased and the role of their reputation mechanism will be

weakened.

Accordingly, it is found that when balancing equilibrium conversion cost and benefit brought by reputation increase, corporates with different operating capacities will choose reputation targets matching their capacities and adjust relationship trading proportion accordingly. It is inferred the value of external reputation being based on relationship trading proportion. Based on the above, hypothesis H1 is proposed.

H1：In case of other conditions being the same, corporate with greater relationship trading proportion have relatively poorer external reputation.

B. How Does Internal Control Regulate The Impact of Relationship Trading on Corporate Reputation?

High-quality corporate accounting information and the information flow between corporates and investors are indispensable conditions for enhancing corporate external reputation. The reliability of corporate accounting information and liquidity between corporates and investors rely on the fact that corporates have a sound internal risk management. There are clear provisions in COSO committee reports that the primary objective of corporates' internal control operation is to ensure the quality of financial reporting. Many scholars from home and abroad have verified the inseparable relationship between internal control, reliability and liquidity of corporate accounting information. Doyle et al. (2007) found that corporate internal control effectiveness directly affects the quality of accounting information. Corporates' improvement in internal control helps reach higher financial reporting quality (Ashbaugh-Skaife et al., 2008). Meanwhile, corporates with low information risk are more inclined to voluntarily disclose internal control information and reduce the information asymmetry among themselves and investors (Francis et al., 2008; Grossman & Hart, 1980; Milgrom, 1981). Meanwhile, opportunistic risk caused by corporates' excessive dependence on suppliers/customers is also, to some extent, constrained by effective corporate internal control. Scholars have pointed out that the improvement of internal control quality can reduce corporates' self-defense investment against opportunistic behavior of major suppliers/customers (Lado et al., 2008). Trading costs fall accordingly, and the risk of excessive relationship trading could be well recognized and controlled. As the proportion of private information provided for major suppliers/customers declines, the more provision of high-quality financial information in a corporate on the public platform is, the higher the corporate's external reputation will be.

Background Analysis of External Supervision System in Corporates: Being different from western countries, China's internal control system development started much later. Before 2012, there were no mandatory provision requirements on internal control information disclosure for listed firms in Shanghai and Shenzhen stock exchanges. Information disclosed then was on the voluntary condition. Furthermore, the format and requirements of information disclosure of listed firms were not effectively standardized (Li & Wang, 2004), resulting in the fact that the *Basic Rules of Internal Control*, jointly issued by five ministries in 2008, has not been well implemented (Yang & Wang, 2008), and the disclosed information was of poor quality with the overall internal control of the listed firms being at a low level. However, after 2012, the government demanded A-share main board listed firms in Shanghai and Shenzhen stock exchanges to disclose internal control information with detailed requirements on content, layout, procedure and method. Thus, there came into being the Chinese "SOX" Act. Under external pressure and internal risk management, corporate have continuously developed internal control system, renovated internal control defects and improved the overall quality of internal control. In corporates, risks brought by the excessive reliance on relationship trading could also be significantly restrained. The quality of financial information will be improved. The public and investors have more confidence in corporates, and corporate external reputation will in turn increase. The fact is the transition of the internal control defects state is usually "non-hysteretic". That is, the transition is only influenced by the defect state of the current year and the probability of the state transition, in the nature of Markov Chain.

***Analysis of immune mechanism of internal control*:** Based on the principle of bionics and self-organizing theory, internal control could be taken as an "immune system" against risks for corporates (Yang et al., 2013). Domestic scholars (Lin & Chen, 2016) found that the risk immune function of internal control is similar to the innate immune system of living beings, which is a process of problem finding, automatic measure taking and repairing, and further strengthening that will lead to a more powerful immunity. If a corporate's risk immune system is compromised and vulnerabilities appear, internal and external risks can be infiltrated into every aspects of the corporate, causing

immeasurable loss. Only by ensuring that the immune system of internal control functions properly, can the corporate ensure its operation and development going back on the right track and on the path of sustainable development, and constantly add its value. When a defect occurs within internal control operation, some factors that are detrimental to the sustainable health of the corporate will get into through operating loopholes and weak links, as virus spreading to a human body. Without measures to improve it, the corporate's internal mechanisms will decline as rapidly as the human body, and may even lead to life-threatening conditions. This is called "contagious". The exposure of such defects also reflects the unreasonable and irregular parts of corporate risk management system and internal control construction. Corporates take targeted measures to restore their operational efficiency based on these exposed problems. In the process of renovation, the rise of problems with corporates' internal risk management can be prevented from further diffusing through immunely self-stabilizing function in internal control. Such that an internal risk self-repair ability gradually increases, improving the control environment, and has a certain effect on preventing risk brought by relationship trading as well as bringing sound signals of risk management to the public and investors outside the corporates, which enhances corporate external reputation.

Thus, when corporates are forced by the need for internal survival and external government regulation together with public pressure, with a series of measures to optimize internal risk management, they can renovate major defects in internal control operation to improve internal control quality, and therefore, ameliorate the control environment, which will significantly lower the overall risk of the business, promote internal and external accounting information communication, improve corporate accounting information quality and financial reporting reliability, reduce the declining financial information quality and information asymmetry due to relationship trading, and enhance the confidence of the society for the corporates' future development, which will help improve corporate reputation. Based on the above analysis, hypothesis H2 is proposed as the followings:

H2：In case of other conditions being equal, the improvement of internal control quality can help restrain the negative effect of relationship trading on corporate reputation.

III. RESEARCHDESIGN

A. Model Setting and Variable Definition

To test hypothesis H1, the following is set as Model (1):

$$Efn_{i.t+1} = \alpha + \beta_1 Supply_{i,t} + \beta_2 Customer_{i,t} + \beta_3 Size_{i,t} + \beta_4 Complex_{i,t} + \beta_5 Growth_{i,t} + \beta_6 Property_{i,t} + \beta_7 Zzca_{i,t} + \beta_8 Roa_{i,t} + \beta_9 Lev_{i,t} + \beta_{10} Board_{i,t} + \beta_{11} Ptens_{i,t} + \beta_{12} Ndr_{i,t} + \beta_{13} Salary_{i,t} + \beta_{14} Market_{i,t} + \beta_{15} Age_{i,t} + \beta_{16} \sum Lndustry_{i,t} + \beta_{17} \sum Year_{i,t} + \varepsilon \quad (1)Efn$$

In Model (1) is an explained variable (corporate reputation). There have been studies that have found that the performance of corporate social responsibility can often be reflected in reputation indicators (Moskowitz, 1972). It has been well-accepted that corporate social responsibility can be used to measure a corporate's reputation. With continuous investments in social responsibility, corporates build a good image in the eyes of stakeholders, thereby enhancing their reputation (Shi et al., 2009). Based on this, the social contribution value per share is adopted as an indicator of corporate external reputation. The calculation formula is as follows:

Social contribution value per share = (net profit + income tax expenses + taxes and surcharges + finance expenses, employee's payable salary at the end of period - employee's payable salary at the beginning of period taxes paid to and for employees public welfare donation)/ total shares at the end of period.

On the other hand, this study refers to the practice of Xiao & Hu (2007), taking a corporate's illegal behavior as an element to measure its corporate reputation. For example, if a corporate has not been punished by CSRC, Shenzhen stock exchange or Shanghai stock exchange during 2007 and that year, its reputation value is 1;if there is a violation but has not been reported by the media, the reputation value is 0; if a corporate is subjected to multiple violations and has been reported by the media, its reputation value is -1. Meanwhile, considering that corporate reputation is less affected by personal infractions, corporate with only personal infractions that year have been excluded so as to ensure that the results were unbiased. Multiple ordered logistic regression has been adopted to verify Model (1), concerning the variables being ordered categorical ones.

The explanatory variables in Model (1) are $Supply$ and $Customer$ (supplier/customer relationship trading).

Similar to previous studies, the practice by Banerjee et al. (2008) has been adopted, and measure the degree of corporate relationship trading by using the proportion of a corporate's purchase volume (customer sales volume) from its top five suppliers in the year against its purchase volume (sales volume) in the whole year.

To verify hypothesis H2, Model (2) is set:

$$Efn_{i.t+1} = \alpha + \beta_1 Supply_{i,t} + \beta_2 Customer_{i,t} + \beta_3 Size_{i,t} + \beta_4 Icid_{i,t} + \beta_5 Icid * Supply_{i,t} + \beta_6 Icid * Customer_{i,t} + \beta_n Model1Control_{n,t} + \mu \quad (2)$$

Model (2) introduces the effectiveness of internal control ($Icid$) and the cross-multiplying term of corporate relationship trading ($Icid * Customer$、$Icid * Supply$) based on Model (1),to investigate the influence of the operating effectiveness of internal control on external reputation of corporates.

The specific reference variables are shown in Table 1.

Table I. Variable Definitions

Variable	Variable Definition
Efn1	It is calculated according to the social contribution value per share.
Efn2	It is a virtual variable. For example, if a corporate has not been punished by CSRC, Shenzhen stock exchange or Shanghai stock exchange during 2007 and that year, its reputation value is 1; if there is a violation but has not been reported by the media, the reputation value is 0; if acorporate is subjected to multiple violations and has been reported by the media, its reputation value is -1.
Icid	It is measured by the internal control index /100 of DIB database.
Supply	It is the proportion of a corporate's purchase volume from its top five suppliers in the year against its purchase volume in the whole year.
Customer	It is the proportion that acorporate's sales volume received from its top five customers against its annual sales volume.
Size	It is the natural log of total assets at the end of the year.
Complex	It is (net final inventory + year-end accounts receivable)/year-end total assets.
Growth	It is (operating income in the year - operating income for the previous year)/annual operating income.
Property	It is a virtual variable. If the final controller of a corporate is a state-owned shareholder, it is 1; otherwise, 0.
Zzca	It is total operating income in the year/(initial total assets + final total assets) / 2.
Roa	It is total net profit at the end of period/average total assets.
Lev	It is total liabilities at the end of period/ total assets at the end of period.
Board	It is the total number of board members.
Ptens	It is the shareholding ratio by the largest shareholder in a corporate.
Ndr	It is the proportion of the number of independent directors against that of directors.
Salary	It is the natural log of the total compensation of the top three executives.
Market	It is referred to China's Marketization Index - The 2009 report of the relative process of marketization in various regions by Fan et al. (2010).
Age	It is a corporate's IPO time.
Industry	It is a virtual variable set according to the industry classification standard by securities regulatory commission, in which manufacturing is subdivided with secondary code.
Year	It is a virtual variable of year which is used to control macroeconomic effects.

B. Sample Selection and Data Source

In this paper, the listed companies in 2007-2016in Shanghai and Shenzhen stock exchanges were listed as research samples. However, the following companies were excluded: (1) financial insurance companies; (2) companies with financial data missing; (3) companies with only personal violations yearly. Finally, there were 6,728 effectively observed values of $Supply$, and 8,689 effectively observed values of $Customer$. The data of this

paper mainly comes from CRSMAR. In order to avoid abnormal effects of extreme values on regression results, the main continuous variables in the models were winsorized up to±1%.

IV. MULTIPLEREGRESSIONANALYSIS

A. Descriptive Statistics

In order to detect the difference between corporate reputation, the level of relationship trading, profitability level, business level and other indicators, the following descriptive statistics were listed in Table 2.

According to Table 2, compared with firms of low-level internal control, the mean and median of corporate reputation are much higher in corporates with high-level internal control, which reveals that firms with higher level of internal risk management usually enjoy higher external social evaluation and higher reputation. Meanwhile, the proportion of relationship trading in companies with high-level internal control is significantly lower than that in corporate with low-level internal control, which indicates that the effective operation of internal control inhibits the excessive reliance of corporates on relationship trading. Other control variables are no longer redundant.

Table II. Descriptive statistics of variables on different internal control levels

Variable	Corporates with low-quality internal control						Corporates with high-quality internal control					
	N	Median	Mean	Std. dev	Min.	Max.	N	Median	Mean	Std. dev	Min.	Max.
*Efn1	4344	0.3255	0.4362	0.6766	-4.6771	9.4168	4345	0.7264	1.0029	1.2760	-6.2962	25.5232
*Efn2	4344	1	0.3619	0.8374	-1	1	4345	1	0.6265	0.7076	-1	1
*Customer	4344	0.2560	0.3276	0.2436	0	1	4345	0.2015	0.2777	0.2375	0	1
*Supplier	3364	0.3223	0.3779	0.2307	0	1	3364	0.2757	0.3322	0.2177	0	1
Icid	4344	6.2931	5.8928	1.2995	0	6.8339	4345	7.2047	7.4469	0.6542	6.8339	9.9536
Size	4344	21.6803	21.6803	1.2344	15.5773	26.5109	4345	22.4030	22.5556	1.4195	15.7152	28.5087
Complex	4344	0.2246	0.2643	0.1930	0	0.9429	4345	0.2436	0.2775	0.1905	0	0.9356
*Growth	4344	0.0395	0.1480	0.7235	-0.7441	5.5403	4345	0.1547	0.3051	0.8236	-0.4621	6.5889
Property	4344	1	0.6395	0.4972	0	1	4345	1	0.7093	0.4632	0	1
*Zzca	4344	0.5079	0.6242	0.5580	0.0007	9.3098	4345	0.6552	0.7998	0.6564	0.0007	9.0726
*Roa	4344	0.0163	0.0106	0.2436	-6.7760	10.4009	4445	0.0416	0.0503	0.0685	-1.2915	0.9208
Lev	4344	0.5295	0.5509	0.4281	0.4281	13.7114	4345	0.5404	0.5453	0.3787	0.0108	13.3969
Board	4344	9	8.9199	1.7878	4	18	4345	9	9.3862	1.9688	4	18
*Ptens	4344	49.6092	49.9382	15.5622	4.4526	99.1873	4345	56.8017	56.3477	16.5799	3.5876	98.1639
Ndr	4344	0.3333	0.3676	0.0532	0.1428	0.7143	4345	0.3333	0.3673	0.0561	0.0909	0.7143
Salary	4344	13.8071	13.7784	0.8000	9.6023	17.1164	4345	14.1662	14.1282	0.7939	10.3080	17.1668
Market	4344	8.1400	8.4790	2.1943	0.38	11.8000	4345	9.0200	8.9287	1.9683	0.3800	11.8000
Age	4344	14	13.9418	4.4386	2	24	4345	13	12.9563	4.5052	1	24

Note: Variableswith "*" in the table are variables of significant difference with varied internal control effectiveness. The sample observation of descriptive statistics adopted the sample size of Customer apart from Supply.

B. The Person Correlation Test of the Main Variables

Table 3shows the result of the correlation test of the main research variables in the model. According to the coefficient matrix in the table, the correlation coefficient between the main variables remains within acceptable limits, which indicates that there is no serious co-linear problem between variables. In terms of supplier relationship trading, Efn1, Efn2 and Supplier are significantly positively correlated at the 1% level, which indicates that among listed firms in China, the greater the proportion of supplier relationship trading is, the worse corporate reputation is. And after adding the adjustment variable Icid, Icid is significantly positively correlated with Efn1 and Efn2 at the 1% level, while Icid has a significantly positive correlation with Supplier at the 1% level, which indicates that the improvement of internal control quality can inhibit the negative effect of supplier relationship trading on corporate reputation. On the other hand, from the perspective of customer relationship trading, Efn1, Efn2 and Customer are significantly negatively correlated at the 1% level, indicating that the existence of customer relationship trading affects corporate external reputation. After adding the adjustment variable Icid, Icid has played an important role in reducing the impact of customer relationship trading on corporate reputation.

Table III. Results of Person correlation analysis on the main variables

Varibles	Efn1	Efn2	Supplier	Customer	Icid	Size	Complex	Property	Board	Ptens	Salary	Market
Efn1	1.000											
Efn2	0.103***	1.000										
Supplier	-0.116***	-0.058***	1.000									
Customer	-0.102***	-0.053***	0.303***	1.000								
Icid	0.224***	0.261***	-0.131***	-0.134***	1.000							
Size	0.295***	0.163***	-0.221***	-0.188***	0.421***	1.000						
Complex	0.066***	0.018**	-0.100***	-0.141***	0.073***	0.041***	1.000					
Property	0.092***	0.068***	-0.052***	-0.016**	0.064***	0.267***	-0.095***	1.000				
Board	0.084***	0.087***	-0.052***	-0.024**	0.154***	0.280***	-0.092***	0.187***	1.000			
Ptens	0.180***	0.138***	-0.091***	-0.024**	0.201***	0.387***	-0.008	0.142***	0.123***	1.000		
Salary	0.287***	0.098***	-0.165***	-0.187***	0.313***	0.537***	0.104***	0.082***	0.173***	0.211***	1.000	
Market	0.054***	0.122***	-0.042***	-0.115***	0.123***	0.095***	0.128***	-0.040***	-0.009	0.078***	0.273***	1.000

* Represents significance at the 10% level.

** Represents significance at the 5% level.

*** Represents significance at the 1% level.

C. Multiple Regression Analysis

***Supplier/customer relationship trading and corporate external reputation*:** The regression results are shown in Table4, and the regression results of supplier relationship trading ($Supply$) and corporate external reputation (Efn) are shown in Columns 1 and 3 in Table 4.It is found that supplier relationship trading and corporate reputation are significantly negatively correlated at the 1% level, indicating that the increase of relationship trading proportion between a corporate and its major supplier(s) will damage its reputation. In another word, its business

stakeholders' confidence in its future development will be affected by its relationship trading proportion. Meanwhile, the regression results of major Customer relationship trading ($Customer$) and corporate external reputation (Efn) are shown in Columns 2 and 4 in Table 4. Similarly, it is found that the main customer relational trading and corporate reputation are significantly negatively correlated at least at the 5% level, demonstrating that the increase of relationship trading proportion between a corporate and its major customers also reduces the corporate's external reputation. According to the above analysis, the increase of corporate relationship trading proportion will damage corporate reputation mechanism. Hypothesis H1 is thus verified.

Table IV. Relationship trading and corporate reputation

Explained Variable	Efn1		Efn2	
	（1）	（2）	（3）	（4）
Supplier	-0.2192*** (-3.73)		-0.2394** (-2.03)	
Size	0.1685*** (13.77)	0.1645*** (15.96)	0.2242*** (3.69)	0.1735 (7.59)
Complex	0.0808 (1.02)	0.1221* (1.84)	0.0492 (0.35)	0.0639 (0.51)
Growth	0.3595*** (8.28)	0.3429*** (9.74)	0.0001 (0.55)	0.0001 (0.42)
Property	0.0019 (0.07)	0.0015 (0.07)	0.4404*** (4.92)	0.4536*** (5.05)
Zzca	0.0982*** (4.51)	0.1005*** (5.29)	0.0186 (0.44)	0.0030 (0.08)
Roa	0.3260*** (5.00)	0.3297*** (5.57)	0.3565* (1.83)	0.6234*** (2.79)
Lev	0.0585* (1.90)	0.0913*** (3.44)	-0.1026 (-1.39)	-0.2208 (-2.95)
Board	-0.0044 (-0.59)	-0.0062 (-1.00)	0.0460*** (2.70)	0.0357*** (2.42)
Ptens	0.0052*** (5.93)	0.0050*** (6.86)	-0.0034* (-1.88)	-0.0001 (-0.05)
Ndr	-0.6934*** (-2.82)	-0.6538*** (-3.22)	0.3298*** (2.61)	0.1952*** (2.46)
Salary	0.2872*** (14.84)	0.2654*** (16.31)	0.0241 (0.60)	0.0090 (0.25)
Market	-0.0241*** (-3.82)	-0.0204*** （-3.82）	0.1467*** (5.19)	0.1415*** (4.17)
Age	0.0114*** (3.39)	0.0093*** （3.25）	-0.0937*** (-4.32)	-0.1029*** (-7.52)
Industry/Year	control	control	control	control
F-vaule/**Chi²-vaule**	41.70	53.65	**81.51**	**87.12**
Adj-R^2/**Persudo-R²**	0.1869	0.1872	**0.1036**	**0.1561**
Observations	6728	8689	6728	8689

* Represents significance at the 10% level. ** Represents significance at the 5% level. *** Represents significance at the 1% level. It is the same with the following table.

***Internal control effectiveness, relationship trading and corporate reputation*:** Table5 introduces internal control effectiveness based on relationship trading. In Columns 1 and 3 in Table 5, it is found that supplier relationship trading ($Supply$) and corporate external reputation (Efn) are still significantly negatively correlated at the 1% level, which further verifies hypothesis H1. Meanwhile, it is observed that internal control effectiveness ($Icid$) and corporate reputation (Efn) are significantly positively correlated at the 1% level，showing that the higher internal control effectiveness is, the higher a corporate's external reputation will be. Furthermore, cross-multiplying term of internal control effectiveness and supplier relationship trading ($Icid * Supply$) is positively correlated with corporate reputation (Efn) at the 1% level, showing that the improvement of internal control quality can inhibit the negative influence of supplier relationship trading on corporate external reputation, which validates hypothesis H2. Similarly, in Columns 2 and 4 in Table5, it is noticed that major customer relationship trading ($Customer$) and corporate reputation (Efn) are significantly negatively correlated at least at the 10% level, which validates hypotheses H1. At the same time, cross-multiplying term of internal control effectiveness and major customer relationship trading (Icid * Customer) is significantly positively correlated with corporate reputation (Efn) at least at the 5% level, showing that the improvement of internal control quality can inhibit the negative influence of customer relationship trading on corporate external reputation, which validates hypothesis H2.

Table V. Internal control effectiveness, relationship trading and corporate reputation

Explained variable	Efn1		Efn2	
	（1）	（2）	（3）	（4）
Supply	-0.2097*** (-5.49)		-0.6237*** (-2.87)	
customer		-0.1862*** （-6.72）		-0.2145*** (-3.86)
Icid	0.0019*** (10.58)	0.0016*** （12.34）	0.0041*** (5.94)	0.0039*** (10.39)
Icid*Supply	0.1342*** (5.25)		0.0028*** (3.29)	
Icid*Customer		0.1091*** （5.87）		0.0036*** (5.34)
control variables	control	control	Control	control
F-Value/**Chi²-value**	36.89	47.80	**89.21**	**98.16**
Adj-R^2/**Persudo-R²**	0.2669	0.2692	**0.0714**	**0.0708**
Observations	6728	8689	6728	8689

In order to further validate hypothesis H2, difference is distinguished between the influence of relationship trading on corporate reputation under different levels of internal control effectiveness and the internal control index has been classified. Based on the median internal control index, corporates with index higher than the median are classified as ones with high-quality internal control, and those with index lower than the median are taken as corporates with low-quality internal control. The regression results are shown in Table6.

Based on the comparison of Columns 1 and 3, 5 and 7 in Table 8, it is found that compared with corporates with low internal control levels, supplier relationship trading in corporates with high internal control quality has less negative impact on corporate reputation. For example, the regression coefficient of Column 3is-0.1957, which is 5.73% lower than the absolute value of the regression coefficient of Column 1. Furthermore, the regression coefficient of Column 7is -0.3496, which is 59.47% lower than the absolute value of the regression coefficient of Column 5,

showing that higher internal control level is beneficial to reduce negative effect of supplier relationship trading on corporate reputation. Similarly, with a comparison between Columns 2 and 4, 6 and 8 in Table6, it is found that compared with corporates with low internal control level, customer relationship trading in corporates with high internal control quality has less negative impact on corporate reputation. For instance, the regression coefficient of Column 4is -0.1077, which is 19.63% lower than the absolute value of the regression coefficient of Column 2, and the regression coefficient of Column 8is -0.2713, which is 50.35% lower than the absolute value of the regression coefficient of Column 6, and the results are less significant. These reconfirm hypothesis H2.

Table VI. Diversified influence of corporate relationship trading on corporate reputation at different internal control levels

Explained variable	(1) Efn1 L-Icid	(2) Efn1 L-Icid	(3) Efn1 H-Icid	(4) Efn1 H-Icid	(5) Efn2 L-Icid	(6) Efn2 L-Icid	(7) Efn2 H-Icid	(8) Efn2 H-Icid
Supplier	-0.2076*** (-3.74)		-0.1957** (-2.06)		-0.8625*** (-3.04)		-0.3496 (-1.39)	
Customer		-0.1340*** (3.02)		-0.1077** (-2.13)		-0.5464** (-2.28)		-0.2713 (-1.30)
control variables	control	control	control	control	control	control	control	control
F value	15.39	18.53	34.31	48.13	126.84	120.83	226.46	155.21
Presudo-R^2	0.1457	0.1407	0.2645	0.3987	0.0464	0.0324	0.0919	0.0488
Observations	3364	4344	3364	4345	3364	4344	3364	4345

Limited to space, control variables are no longer shown. Data is in preparation. It is the same with the following table (Table 7).

D. Endogeneity Test

Although the above results show that the improvement of internal control effectiveness increases a corporate's external reputation, it is possible that such an increase is not led by the improvement of internal control quality, but by the enhanced corporate reputation which results in stronger internal driving force that in turn improves its internal control quality. Therefore, there is a possibility of endogeneity between internal control quality and corporate reputation. In order to make results in this study more robust and reliable, in this paper, Propensity Score Matching (PSM) is applied to further testify the data. It shows with Table7 that hypotheses and results of this study are in consistency with the previously mentioned empirical regression. There is no significant fluctuation. Following that, ps test has been used to investigate whether the matched results well-balanced the data. It is shown in Table 8 that t-test results of most variables after being matched do not refuse the hypotheses of non-systemic difference between the treated group and the controlled one. Data in Tables 7 and 8reflect that OLS regression results are similar to PSM, which demonstrates the robustness of the results.

Table VII. PSM Results of relationship trading and corporate reputation

Variables	Efn1	Efn1
Supplier	-0.2356*** (-3.37)	
_cons	1.2548 (0.5)	-2.5708 (-0.38)
Industry/year	Control	Control
R^2	0.2608	0.2740
Observations	9432	9432

Table VIII. Deviation of proximity matching

		Mean		% reduct	t-test	
Variables	Sample	Treated	Control	%bias	t	p>t
SizeLN	Unmatched	20.857	22.252	-73.7	-5.86	0
	Matched	20.857	21.909	-55.6	-1.94	0.052
Lev	Unmatched	0.9500	0.5299	37.9	7.95	0
	Matched	0.9500	0.5416	36.9	1.49	0.136
Roa	Unmatched	0.1450	0.0312	18.2	3.23	0.001
	Matched	0.1450	0.05487	14.4	-1.05	0.294
Growth	Unmatched	3.4313	26.851	-1.8	-0.07	0.941
	Matched	3.4313	61.663	-153.2	-1.56	0.119
Property	Unmatched	0.5312	0.6752	-29	-1.67	0.094
	Matched	0.5312	0.5408	-1.9	0.82	0.41
Age1cl	Unmatched	16.781	16.849	-1.8	-0.08	0.934
	Matched	16.781	16.867	-28.6	-1.13	0.258
Board	Unmatched	8.6563	9.1456	-18.1	-1.48	0.138
	Matched	8.6563	8.747	-3.4	0.31	0.756
Ptens	Unmatched	47.071	53.427	-35.1	-2.21	0.027
	Matched	47.071	50.292	-17.8	0.56	0.574
NDR	Unmatched	0.3946	0.3670	51.1	2.93	0.003
	Matched	0.3946	0.3637	57.3	2.69	0.007
Market	Unmatched	8.4262	8.6784	-12	-0.69	0.493
	Matched	8.4262	8.03	18.9	2	0.046
Complex	Unmatched	0.1284	0.2725	-84.1	-4.31	0
	Matched	0.1284	0.2670	-80.9	-3.05	0.002
Zzca	Unmatched	0.4286	0.7398	-56.5	-2.72	0.006
	Matched	0.4286	0.6963	-48.6	-3.19	0.001
Salary	Unmatched	13.588	14.028	-58.9	-3.1	0.002
	Matched	13.588	13.978	-52.2	-2.12	0.034

E. Robustness Test

In order to make the conclusion of this study unbiased and stable, the following robustness tests have been performed.(1) Referring to the practice conducted by Wang et al. (2010),as the metric of corporate relationship trading was measured by the minimum purchase proportion of the top five suppliers and the sales proportion of the top five customers in the year, results remained unchanged.(2)Chen & Wang (2014) believe that purchasing and sales is more common in manufacturing corporates. Such corporate depend more on suppliers/customers relationship trading. Thus, the above model has been retested only by taking manufacturing corporates as research samples in this study, and results remained unchanged. (3) Generally, ST corporates are facing financial difficulties, which has a negative impact on corporate reputation. In this study, with ST corporates being deleted from the data source, the hypothesis has been retested and analyzed, and results remained unchanged.

V. CONCLUSIONS AND LINMITATIONS

This paper takes the 2007-2016 main board listed companies in Shanghai and Shenzhen A-shares as research samples, and examines the influence of internal control effectiveness and relationship trading proportion on corporate external reputation. Research findings are as follows. (1) The increase of relationship trading proportion between corporates and their major suppliers/customers has a significantly negative impact on corporate external reputation. Stakeholders tend to believe that the existence of relationship trading can bring an opportunity risk to corporates due to excessive dependence on such trading. As a result, they lack confidence in the future development of

such corporates.Otherwise, if relationship tradingproportion decreases, the risk of corporates becoming excessively dependent on major suppliers/customersfalls, and corporate reputation will rise. (2) The improvement of internal control effectiveness will enhance corporate internal risk management, improve the quality of its financial reporting and bring positive signals to the stakeholders. Investors have more confidence in the business, and corporate external reputation will be enhanced. Internal control helps restrain negative impact of relationship trading on reputation mechanism.

Definitely, this study is not flawless.Limited to research conditions, listed firms have less data disclosure about relationship trading.Furthermore, differences in the proportion of the top five suppliers/customers have not been subdivided. These may bring some limitations to this study.

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