

Determinants of Internal and External Corporate Governance Predictors of Operational Risk of Fraud of China's State Owned Enterprises

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Abstract

This paper attempts to estimate the impact of four factors on corporate fraud rate using panel data of China's State Owned Enterprises. The sample period is 2010-2012. We extract company information from annual reports of 60 State Owned Enterprises. We found strong evidence that independence of board members is negatively correlated to the number of fraudulent cases. The other three variables -Relation Base, Executive Board and Educational level- are positively correlated.

Keywords: State owned Enterprise, Corporate governance, Corporate risk, Panel data analysis

1. Introduction

Accompanied with China's opening up policy in 1997 and the economic boom in manufacturing industry, Chinese companies have been expanding to foreign countries in a rapid speed. Some big companies have expanded its business through strategic buyout of foreign company such as Lenovo buying IBM in 2004. Expansion of Chinese company allows foreigners to better understand China but looking in another perspective, immature corporate structure may damage Chinese companies' image. According to a public announcement from Securities Exchange Commission(SEC), Chan TzeNgon, former CEO and chairman of ChinaCast Education Corporation which listed in New York Stock Exchange, was accused for 'stealing tens of millions of dollars from investors in a U.S. public offering, and charged another executive with illegally dumping his stock in the company after he helped steal valuable company assets'. This case does not happen by chance but it is a common but unspoken phenomenon in mainland China's business environment. To name a few cases, Yang Kun, former president of Agriculture Bank of China, was prosecuted for allegedly taking bribe

from Beijing property firm-Blue Harbor Properties Co.LTD, whose owner has connections with senior leaders in Communist Party. Tao Liming, president of Postal Savings Bank of China, was officially arrested in late December (2012) on criminal charges, including illegal fundraising, taking bribes and making loans illegally. These companies mentioned above are some of the largest State Owned Enterprise (SOE) which is insured by central government because they are 'too-big-to-fail'. Although from Chinese law SOEs are subjected to the supervision of governments institutions, the misconduct was not exposed until it was too late.

In this article, we will focus on analyzing the frequency of fraud of Chinese companies by relating four factors namely a) independence of Directors, b) management power related to Board of Directors, c) Rule-base discipline and d) Director's educational background. We will select samples of Misconduct Company which listed in Chinese stock exchange and look for the company's annual report, news report related to the company, or business periodical to gather information about the composition of the company's senior management. In order to guarantee the accuracy of research, company's market capital, company's type, company's operating history will be ignored. After the data were gathered, we test the hypotheses by using the Probit Linear Regression method.

2. Literature Review

2.1 Independence of Decision

Harris and Raviv (2004) show a model for optimal board control, involving decision delegation, the optimal number of outsiders' information and the extent of agency problems. This model assumes that the outside directors are monitors and inside directors are information providers. Hermalin (2005) present a number of trends in corporate governance that the board monitors management is increasing in board independence. This model predicts that the board independence and CEO compensation should vary together oppositely in the cross section, but positively in time-series data. Adams and Ferreira (2005) prove that when it is significant for CEO to share information with the board of directors, shareholders may be inclined to choose a less independent or friendlier board.

Fama and Jensen (1983) support that the Board has obligation to protect the shareholders' interest because the principle and agent may have different interests and the agent want to maximize the board's individual utility by using the principle's utility. However, the ability of the board to get information and discipline the manager requires an active behavior (Eisenhardt 1989). According to Weisbach (1988), among the scandals such as Enron, HealSouth, Tyco and Worldcom which was doubted at the quality of the accounting information, the independence of the board of directors was the most important part because only an independent director is able to control six managers. In addition, according to some analysts, the main criticism they present is related to its independence of board (Agrawal and Chadha, 2005). Besides, according to Sharpe(2011), the regulars have required greater board independence instead of improvement of the organizational process necessary for boards to function effectively. These regulations are designed to enhance the board performance by changing the structure of the board through increasing the number of independent directors to create a more detail and independent committee structure. The regulations assume that the higher level of the

independence can help creating more effectively boards to monitor corporate management.

Hypothesis 1: The Company with board that has more independence on decision making is less likely to committee fraud.

2.2 Management Power Related to Board of Directors

All listed companies in China are required to formulate a board which consists of senior managers from the company and outside shareholders. Senior managers are given huge power so that they run the company for the greater good. Nevertheless, since the company is listed in stock exchange, the ownership of the company became complicated because part of the company is owed by outsiders and interest conflict emerged. According to agency theory, managers and owners of the company usually have conflict in interest: managers take high risk in selecting projects which could increase the company's return so that they could get higher bonus, but this could put it in long-term adverse situation that the stockholders might not in favor of. For instance, Fung and Lau (2013) demonstrated in a partial general equilibrium model that the managers (agents) have incentive to overinvest in risky research projects, sacrificing the benefit of the shareholders (principal). However, shareholders can diversify their investment portfolio to alleviate their risk and in addition to that, because their position on the board, they have more knowledge than other investors. Therefore, shareholders are as prone as managers to commit fraud.

Although agency theory has pointed out both party have incentive to commit fraud, it did not explain what factors could explain the cause. Some articles have realized this problem and research have carried out on this issue. However, they have different view in many aspects. According to Al-Saidi(2013), board size and proportion of non-executive directors negatively affect bank performance because they have discretionary power on the operation of firm. Nonetheless, another article gave different view that neither of the two parties is more powerful than the others(Beijing: Development Research Center of the State Council of the People's Republic of China). This point of view is also supported by another article that 'the independence of board of directors in Australia did not have noticeable impact on the corporate strategic decision making process'. No consent is drawn on who is more superior than others and how their positions could motivate them to commit fraud. Furthermore, most of the researches are focus on BOD in foreign country. Sharma(2004) found significant relationship between the 'percentage of independent directors and percentage of independent institutional ownership' and likelihood of fraud. However the conclusion is base on research carried in Australia where economic and political development is fundamentally different from China. Furthermore, Obeua(2005) studied 222 listed companies on NASDAQ and conclude that when audit committee is consist of independent directors and, when audit committee have 'smaller number of directorships with other companies', likelihood of fraud is smaller. which may not applicable in China because of different level of economic development. In order to solve this gap, we will include a new measurement method on the management power on BOD.

To measure the management power on the board, managers in the position of CEO, COO, CFO and CMO will be categorized as 'enemy to shareholders'. We will count the number of these managers sitting in the board as indicators of management power. The larger the amount of

senior managers presenting in the board the stronger the management power and weaker the stockholder power will be. If one party prevail other, then the other party will not be able to exert power to restrict the wrong doings. Following this logic, we hypothesis that,

Hypothesis2: Imbalance of power distribution will increase tendency of fraud

2.3 Relation-Based Discipline

Rule-based discipline refers to rules that specify whichever actions are prohibited. The intention of setting up this discipline is to reduce operational risk caused by senior managers' wrong doings. However, because of culture influence and powerful influence from the political system, Chinese companies are reluctant to transform themselves to rule-based discipline but to follow the relation-based discipline(Shamao, 2013). Relation-based discipline emerges in underdeveloped economies because judiciary system was immature, and the management cost using relation-based discipline is less costly. Shamao(2013) mentioned that some people believe that relation-based discipline is profound in Chinese society and many managers or owners of the company, though founded to have committed fraud or other misconducts, did not receive equally matched punishment. Most of the time, their misconduct would only last for a very short time and sooner disappear from the public's eyes. 'Certainly, there's someone from the top backing him up' according to Shamao(2013). Therefore, it is reasonable to link the emergence of fraud to the relationship-net that the manager or board of director has. The hypothesis is made as follows

Hypothesis 3: Managers who are backed by powerful politicians are more likely to commit fraud.

2.4 Educational Background of Directors

Educational is a term that refers to expertise of various aspects - accounting, legal, corporate governance and cost control. There is an academic consensus on the correlation between directors' education level and firm's performance. However, economists have diverse view on what aspect it influence the firm. In order to fill the gaps in the above issues, we put the unstable elements related to firm, such as fallacy accounting disclosure, misconducts, or risk-taking activities, into an aggregate term 'fraud'. The reason is that the above activities share a common characteristic - that is the operational risk of the firm. Operational risk is non-monetary uncertainties imposed by corporate members that could possibly put the company into threats. On the other hand, we define education level not as detailed as the above scholars since conducting business in China involves unquantifiable variables most obviously-broadness of social network. In order to take this uncertainty into consideration, we will count the percentage of directors who has a degree above a specific level. We assume that the in addition to various areas of expertise, directors' broadness of social connections can be explained by level of educational institution that the director has been through. The higher the level of educational institution, the more powerful people the directors will encounter and eventually turn out to stable, long lasting connections.

Based on the above conclusion and assumptions, hypothesis is generated as following,

Hypothesis 4: Companies with larger proportions of directors who has received bachelor degree(or equivalent) are less likely to commit fraud or misconduct.

2.5 Fraud Rate against the Misrepresentation Behavior

Fraud is defined as a false representation of a matter of fact whether by words or by conduct, by false or misleading allegations, or by concealment of what should have been disclosed. Generally, fraud is deemed as dishonesty calculated for advantage. Under U.S. legal system, fraud is a specific offense with certain features. The fields that most likely to refer to fraud are in the buying or selling of property, like real estate, personal property, and intangible property, such as stocks, bonds, and copyrights. Federal statutes and State criminalize fraud, however, not all cases of fraud are in the level of criminality.

3. Data and Methodology

In order to maintain integrity of the data source, data are derived from the same source: annual reports of the listed companies from Sino Finance¹. There are 60 State-Owned Enterprises in the sample. For companies that do not provide information about each board member's education level and therefore, we collect the information from the company website. The sample period is 2010-2012. There are 180 observations.

3.1 Measurement of Independent Variables

3.1.1 Independence of Decision

The unitary board structure in China is similar to most of other countries. The board members are divided into three categories, namely independent board members, non-independent board members and executive board members. Independent board members are shareholders who have interest tied with the company such as taking to large proportion of company's issuing stock, or being the mother-company. These board members are not directly involve in daily operation of the firm whereas their major duty is to ensure managers to make the 'right choice', oversee the implementation status of firm's strategy, and creating available resource for further development of the firm. On the other hand, executive board holds the opposite angle in attending the meeting because they do not actually own the firm but just managing the firm for their owners. Although they share common interest with independent board members to a certain extent, directors in the executive board could exert great influence that may jeopardize independent board's decision making. Furthermore, the non-independent board members, also known as the stakeholders of the company, could be 'enemies' sent by the competitive firm to irritate the growth of the company.

With the executive and non-independent board members mentioned to prevent independent board members from exercising their decisions, in the following research we will take the percentage of independent board members into consideration. To be more specific, the number of independent board members will be divided by total amount of board members. Three years

¹<http://finance.sina.com.cn/>

of independent board member percentage will be taken into consideration. Last but not least, those who are replaced by others or temporarily leave its position will not affect the accuracy of data because only the aggregate amount of independent board members matters.

3.1.2 Management Power Related to Board of Directors

As mentioned in the literature review, the executive board members are mainly the senior managers from the company. The senior includes CEO, CFO or COO. Since they are responsible for daily operation of company, they have informational advantage and have the most say in deciding the corporate growing. However due to the structural composition of the board, management power of senior managers is limited and therefore, this circumstance should be taken into consideration since it might has a conspicuous relationship of leading to corporate misconduct or even fraud.

The measurement of management power is similar to the methodology utilized in gauging independence of decision mentioned previously. Only the aggregate amount of executive board members will be considered in calculating the percentage of executive board members.

3.1.3 Relation-Base Discipline

Since company with board members who have government background could exert significant influence to company's growth, especially when company is facing risk from public. Quantifying how relation-base discipline could contribute to occurrence of misconduct or fraud is hard because it involves elements such as level of governmental agency that board member has served in, broadness and depth of social network that board members possess or whether the government background of the board members could make any effect on demand. In order to overcome the difficulty, an assumption is needed an empirical ground-any member with government background is capable and willing to save the company when needed.

With the assumption laid out above, we will count and derive a percentage of members with government background, the same calculation method used in measuring independence of decision as well as management power.

3.1.4 Educational Background of Directors

Base on the raw collection from randomly selected companies' annual report, it is evident that Chinese directors have diverse educational background irrespective of type of company they are serving in. Although previous research proposed that directors with legal background could make less risky decision, simply counting the number of directors with legal background is far away from appropriate because it would bias our research. Judging from the selected companies, very few companies has detailed introduction whether directors have legal background. However, most of the annual reports present directors' educational level. Most of the directors received educational degree of four types and they are a) below bachelor degree, b) bachelor degree, c) master degree or MBA and d) doctor degree. Since educational degree are ranked in a chronological order in general definition, in our report, companies with board of director's educational degree above bachelor's degree will be counted and base on the number

we will find out the respective percentage amount.

3.2 Fraud Rate against the Misrepresentation Behavior

After selecting sample companies, companies' fraudulent behavior are categorized into three types, namely misrepresenting accounting data, internal trading and mistreating employees. In the other hand, companies have less severe wrong doings than fraudulent behaviors. These behaviors are usually given oral warnings instead of going through legal process in court. Although these less severe wrong doings are not considered fraud, it has the potential to develop into fraud because they occur more frequently. In order to measure the possibility of wrong doings being developed into fraudulent behavior, in this report we will divide the number of fraudulent activities against the number of less severe wrong doings.

3.3 Methodology

In order to find connections among independent variables and dependent variable across time, a panel data analysis is carried out. The estimation formula is as follows.

$$y = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon + U_i$$

X_1 = the independence level of decision of the board

X_2 = the management Power Related to Board of Directors

X_3 = relation-based discipline of the company

X_4 = education level of board members

ε = random error

U_i = individual effect variable

For the Panel Regression model, the key assumption we make is that the error u has an expected value of zero given any values of the independent variables: $E(u/x_1, x_2, x_3, x_4) = 0$.

The assumption requires that all factors in the unobserved error term be uncorrelated with the explanatory variables. And it also represents that the relationships between the explained and explanatory variables are functional. This assumption implies that the OLS model is unbiased.

The second assumption is that the linearity assumption where $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ are all unknown, constant parameters, and u is an unobservable random or disturbance term.

The third assumption is the random sampling assumption where the sample of n observations:

$\{(x_{i1}, x_{i2}, \dots, x_{i4}, y_i) : i = 1, 2, 3, 4\}$ are chosen randomly.

However, when collecting data of the companies with fraud, we find that a large number of the

large companies in China did not disclose their fraud information from 2010 to 2012. As a result, to make the regression more reasonable, we choose the companies that contain some fraud or misconduct behaviors during the time horizon so that the research can be more meaningful.

The fourth assumption is the homoskedasticity that the variances of all the error term- u are equivalent and constant given any value of the explanatory variable: $Var(u/x) = E(u/x^2) = \sigma^2$

On the other hand, when $Var(u/x)$ is dependent on x , the error term is claimed heteroskedasticity which means there is no constant variance.

Another assumption is that the covariance between different u is zero, which means that:

$$Cov(u_i, u_j) = E(u_i u_j) = 0, (i \neq j, i, j = 1, 2, 3, 4)$$

When the covariance between different u is not zero, we call it serial correlation, or autocorrelation. It means that X is non-randomly treated. The covariance between the errors of different observations and the explanatory variables are zero in the sample, which is that generally u is uncorrelated with x :

$$Cov(x, u) = E(xu) = 0$$

This is important for the estimated coefficients to be unbiased.

4. Data Analysis

After collecting data from company's annual report, in the following part we will break down the analysis into two main parts, namely 1) Descriptive Statistics, and 2) Regression Output and Analysis.

4.1 Descriptive Statistics

In this part we focus on detecting the change in the number of different function of board members, change of board's civilized members, and change of board members with government background. The change in independent variable will be measured by dividing the differences between two year's data with the last year's data. We assume that number of previous year is independent of the latter year. Analysis in this part aims to generate basic information for the analysis in the latter part-regression analysis.

Table 1a. Independent variable percentage change as of 2011-2012

	Mean	Max	Minimum	Standard Deviation	Number of zero Change
Change of Total board members	3.72%	80%	-14.3%	0.1444	43
Change of Independent board members	7.11%	200%	-33%	0.308	52
Change of civilized board members	0	0	0	0	58*

Change of executive board members	0.5%	100%	-50%	0.187	51
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Table 1b. Independent variable percentage change as of 2010-2011

	Mean	Max	Minimum	Standard Deviation	Number of zero Change
Change of Total board members	2.44%	63.6%	-11.8%	0.122	44
Change of Independent board members	4.33%	100%	-33.3%	0.204	49
Change of civilized board members	25.7%	550%	-100%	1.262	17
Change of executive board members	7.11%	300%	-100%	0.543	43

As can be seen from Table 1a, most of the sample companies hired more experienced and civilized board members with an average of 25.7% increase in the number of civilized board members. On the other hand, Table 1b shows that no significant change is spotted in the year 2011 to 2012 in independent variable that measure board member’s education level.

From these two tables presented above, about 70% of the companies made no changes in composition of board members or modifying the aggregate number of board members, as indicated by ‘the number of zero change’. Companies that made a change in the structure of board members had a great variation in change, as indicated by the Standard Deviation indicator, and the change expanded faster in 2011 to 2012, than 2010 to 2011.

In order to present the change of independent variables across time, the following line chart, Figure 1. will present the average value of each independent variables of each year.

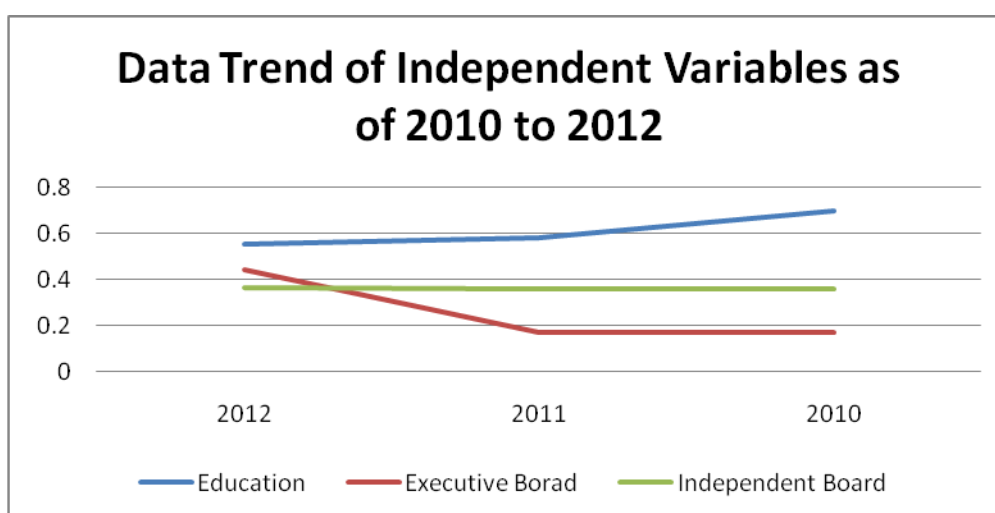


Figure 1. Data Trend of Independent Variables as of 2010 to 2012

As can be seen from Figure 1, percentage of independent board member has the minimum

change across time while for the other two independent variables, namely percentage of board members with decent education level and percentage of executive board members, have significant change in different way. Percentage of executive board member increased substantially in year 2011 to 2012. However, percentage of board member with decent education level decreased gradually from 2010 to 2012. In conclusion, percentage of executive board member has an opposite pattern to percentage of board members with decent education level. Percentage of independent board member has the least change across three years.

In order to carry out statistical analysis, each variable deserves an in-depth investigation in their distribution style. In this part, we will analyze each variables in four parameters namely, 1)Skewedness, 2)Kurtosis, 3)Jarque-Bera and 4)standard deviation.

Table 2. Summary Descriptive Statistics

	Independent Board Member			Civilized Board Member			Executive Board Member			Fraud against misrepresentation		
	2010	2011	2012	2010	2011	2012	2010	2011	2012	2010	2011	2012
SD	1.33	1.53	1.89	4.67	3.77	3.77	1.43	1.53	1.78	0.10	0.177	0.11
Skew	0.99	0.89	1.42	0.31	0.07	0.07	0.89	0.78	0.47	-0.49	0.727	0.20
Kurt	3.29	2.93	5.57	2.09	2.26	2.26	4.17	3.67	2.52	2.53	2.514	2.12
Jarq	0.01	0.02	0.00	0.22	0.49	0.49	0.00	0.03	0.25	0.61	0.05	0.31

**In the above table, 'SD', 'Skew', 'Kurt' and 'Jarq' are abbreviations for Standard Deviation, Skewness, Kurtosis, and Jarque-Bera' accordingly.*

One of the independent variables-relation based discipline-does not appear in this part mainly because the measurement is a binominal distribution. Table 2.shows that the standard variation of each variable remain at similar level over time. The standard deviation of fraud against misrepresentation is the smallest. The number of independent board members is right skewed and the differences between companies widen from 2010 to 2012. This variable is one of the few variables which roughly followed normal distribution as indicated by the Jarque-Bera indicator. Similarities can be found in another independent variable namely Number of Executive Board Member. The distribution is right skewed and when it came to 2012, the skewness decreased with more centrally clustered. However, normally distribution assumption can only be met in 2010 and 2011, but not for 2012.

The Civilized board members variable is different in a way that there is virtually no change in distribution style between 2011 and 2012, but 2010 has a different pattern. From the Table 2, we can see a unique distribution pattern where companies with number of civilized board members mainly clustered around 2,7,8 and 11. Due to the distribution issue, there remains further investigation in the following regression analysis.

Last but not the least, the dependent variable-Fraud Against Misrepresentation-has more complicated distribution. Most of companies has 10 to 25% of fraud against misrepresentation with a peak at 20 to 25% and with a small group of extreme values occur in 0% to 5%. From distribution table in 2011, most of companies have either no fraud or no misrepresentation in this year making a major amount(31) cluster in 0% range. The remaining 50% of data vary from 10% to 55%. In summary, most of the variables in this research have diverse distribution.

4.2 Regression Output

For comparison purpose, we will first present the results of Pooled OLS - without adjustment of cross-sectional nor temporal dependences. However, other unobservable variables, such as economic background, market competition or strategy settings of company, could potentially bias the result. We follow estimation strategy similar to that of Fama and MacBeth (1973) and Fung *et al.* (2014) to control for small sample bias and compute robust standard error. Table 3a reports the Pooled OLS estimation results. All the coefficients are significant at one percent except the intercept. Evidently, we cannot reject Hypotheses 1-3. For instance, when there is an additional independent board member, the number of fraud rate drops by 0.283. However, Hypothesis 4 is rejected soundly. Our results suggest that higher educational level would lead to an increase of fraudulent cases - 0.1169 percent increase, contradicting the theory. The OLS model explains 16.32% of the data and the independent variables are jointly significant. The model is jointly significant as indicated by the low p-value of the F-statistics.

Table 3a. Panel Data Estimation Results - Pooled OLS

Variables	Coefficient	p-value
Constant	0.0396	0.4633
Relation Base(Gov)	0.0889	0.0003
Independent Board (PIND)	-0.283	0.0308
Educational Level (PEDU)	0.1169	0.0005
Executive Board (PEXE)	0.1154	0.0469
R-Square	0.1632	
Probability(F-statistic)	0.000003	

Table 3b presents the results of fixed effect with the assumption that the unobservables are related to the individual effect. The standard error is robust using the Fung *et al.* (2014) correction method. Comparing to the Pooled OLS, while the sign of the coefficients do not change, the significance do change. First, the Relation-Based and Executive Board are only significant at 10%. Board independence is no longer significant. Education remains as a valid explanatory variation, although the sign is still unexpected. The R -square has increased significantly, which is approximately 0.28. Interestingly, the model is not jointly significant.

Table 3b. Panel Data Estimation Results -Fixed Effect

Variables	Coefficient	p-value
Constant	-0.0955	0.5690
Relation Base(Gov)	0.1707	0.0763
Independent Board (PIND)	-0.0978	0.7942
Educational Level (PEDU)	0.1123	0.029
Executive Board (PEXE)	0.1352	0.0536
R-Square	0.3812	
Probability(F-statistic)	0.2768	

Table 3c presents the results of random effect which assume that the unobservables and the explanatory variable are not correlated. The coefficients are the same as OLS, but the significance level differs. Comparing the Table 3a, the Executive board variable is no longer significant. Hence, using 5% significance level, only Hypotheses 1 and 3 are not rejected.

Table 3c. Panel Data Estimation Results -Random Effect

Variables	Coefficient	p-value
Constant	0.0396	0.4874
Relation Base(Gov)	0.0889	0.0005
Independent Board(PIND)	-0.283	0.0407
Educational Level (PEDU)	0.1169	0.0010
Executive Board(PEXE)	0.1154	0.0598

We use the Hausman test to differentiate between random and fixed effect models. The null hypothesis is random effect being the true model. The p-value of Hausman test is 0.569 rejecting the fixed effect model. Based on the above data analysis, we come to a conclusion that random effect is the appropriate model. The unobservable factors do not significantly affect the probabilities of coefficients. As a result, the OLS and random effect equations are the best models to explain the effect between independent and dependent variables across time. From the information of the cross-sectional random effects test comparisons table we can also get that all the independent variables are significant in explaining the IV-DV relationship by rejecting the null hypothesis parameters in the tables.

5. Limitations

There are three major limitations in our study. Firstly, the data retrieved from balance sheet, newspaper or mass media are based on empirical judgment. For example, measurement of relation-base discipline depends on ranking of government bureaucrats but there can be variations in their political influence. Furthermore, most of company owners' relationship networks are hard to explore and evaluate, therefore posing a huge data accuracy.

Secondly, there are still some variables, that could affect probability of fraud of companies. For example, intensity of market competition, financial performance of company, or corruption of competitors. Omission of relevant independent variable may lead to higher estimation error, which further leads to inaccuracy of IV-DV relation.

Thirdly, the independent variables included in our report remain controversial among academia. Some scholars assert that it is the emergence of fraud that leads to replacement of CEO, and then further leading to manager turnover. This assertion is in contrary to our assumption.

6. Conclusion

From the above analysis, the number of independent board member and the number of executive board member contribute the most to decrease of corporate fraud rate. The other two independent variables-educational background of board members and board members with government background are statistically significant. The last two variables have relatively weak explanatory about the existence of dependent variable because of the measurement subjectivity problem and the limitation about the disclosure of the education level of the board members in the company's annual report. Although the obstacles in conducting the data analysis and regression model, we get the relevant result for our final regression output that all the independent variable are significant in explaining the relationship with company's fraud rate and meaningful.

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