

The Relationship Between Ownership Concentration and Investor Protection: from an Endogenous Perspective

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Abstract: Based on panel data of Chinese A share listed companies in 2002-2007, this paper empirically analyzes the relationship between ownership concentration and investor protection by constructing simultaneous equations of dynamic panel data, which overcomes the endogeneity problem and considers the interaction of ownership concentration and investor protection. The findings show the existence of two-way negative correlation between them, which further validate and enrich “Ownership Concentration and investor protection alternative hypothesis” presented by the LLSV (1998). Based on empirical results, we think that the promotion of full circulation and decentralization of equity should be accompanied with strengthening investor protection.

Key words: Ownership concentration; Investor protection; Dynamic panel data; Simultaneous equations; Endogeneity

1 Introduction

Modern corporate governance theories point out that separation of corporate ownership and control exists (Berle and Mesns, 1932), which inevitably results to agency costs (Jensen and Mecklin, 1976). In Berle and Means' view, corporate ownership is decentralized around the world, and none of shareholders can have an impact on professional managers' decisions. It's real in U.S. corporations at that time and nowadays. However, a large of study found that in many countries ownership is concentrated distributed(LLSV,1998,1999,2000), such as Greece, Italy, Indonesia and Brazil, in which the three largest shareholders hold about 60% of all shares, while the percentage was lower than 20%^①in U.S., United Kingdom, Japan and Taiwan. Why are shares distributed scattered in some countries and regions? LLSV argues that this is due to different investor protection in different countries, and proposes “Ownership Concentration and investor protection alternative hypothesis”.

LLSV provides a new angle to the question, causing a large number of domestic and foreign scholars to investigate the relationship between ownership concentration and investor protection, which results to a wealth of research results. However, the endogeneity problem exists in most of these studies. That's to say, they treat investor protection as exogenous variables, and only consider the impact of investor protection on ownership concentration. But, ownership concentration may have an impact on investor protection in turn, i.e. a two-way interaction, not just one-way relationship as most scholars default, may exist between them. This paper constructs simultaneous equations to overcome the endogenous problem, and consider their possible interaction in order to determine their relationship more accurately.

This paper is organized as follows: firstly, introduction; secondly, literature review; thirdly, the study design; the fourth part is results of empirical research, and the last is conclusions and recommendations.

2 Literature Review

The most classical researchers on ownership concentration and investor protection are La porta, Lopez-de-Silanes, Shleifer and Vishny (LLSV, 1998, 1999, 2000). LLSV (1998) analyses the ownership distribution of ten largest non-financial corporations in 49 countries and regions around the world. They arrange these countries into four groups according to their law origin, and find that the French law countries, which offers the worst investor protection, has the most concentrated ownership. Then they use the sum percentages of shares held in the top three shareholders to represent ownership concentration, and multiply the law degree with extent of implementation of the law to represent investor protection. Regression shows a significant negative correlation between them, i.e. ownership in countries with weak investor protection are often more concentrated, and on the contrary the widely dispersed share is common in the common law countries in which investors are strongly protected.

Inspired by LLSV (1998), domestic and foreign scholars have made a series of studies on the relationship between ownership concentration and investor protection using sectional data, time series

data or panel data, most of which support LLSV (1998)'s hypothesis (Himmelberg. et. al, 2002). But there are also some studies find that ownership concentration and investor protection is not always monotonic negative related. There may be non-linear relationship between them (Aganin and Volpin, 2003; Stepanov, 2003;Castillo and Skaperdas, 2005), or both positive and negative correlation are possible(Burkart and Panunzi, 2006).

A major limitation of LLSV and other scholars' studies is endogeneity. LLSV (1998) admitted that some of the independent variables they used, in particular, accounting standards may be endogenous. For those countries with concentrated ownership, they may be less willing to adopt with better accounting standards and improve them. Thus, the causality would go from ownership concentration to investor protection rather than the other way around. What they can guarantee exogenous among all variables is the legal origin.

In addition to foreign study, domestic scholars also make a lot of research on this topic. However, most of them explore the role of ownership concentration or investor protection in improving corporate performance and corporate governance. Part of the research results are also consistent with the hypothesis proposed by LLSV(1998) (Wang Kemin and Chen Jingyong, 2004; Shen Yifeng, 2007). Direct analysis on the relationship between ownership concentration and investor protection is rare. Xu Nianhang and Wu Shinong (2006) find that the decline of ownership concentration does not entirely result from legal protection for minority investors, it may also be due to other factors. However, Xu and Wu (2006) also do not solve the problem of endogenous.

Different from previous research, Hou Yu and Wang Yutao (2010) use control transfer events in stock markets as samples to overcome the endogeneity. They think that when the transfers occur, the company faces the opportunity to redefine the ownership structure. Given the level of investor protection, companies determine their own shares to maximize control benefits. In this process ownership structure does not affect the level of investor protection, and thus to overcome the endogeneity problem. Therefore, Hou Yu, Wang Yutao (2010) avoids the problem of endogeneity by choosing particular samples. But it can't be applied universally because control market in China is not developed.

The previous studies summarized above show that it should be seriously considered how to research companies in general and resolve endogeneity. By building simultaneous equations including both investor protection and ownership concentration, we consider them as endogenous variables to solve the endogeneity problem. Besides, it can be observed whether investor protection influences ownership concentration, or the other way around, or both interact. In addition, the panel data we use make it possible to investigate how vastly ownership distributes in different areas and how ownership in an individual corporate changes along with increase in the level of investor protection.

3 The Study Design

3.1 Data sources and sample selection

We select China's A-share listed companies in 2002-2007 as samples. We filter them as follows: (1) excluding finance and insurance industry because of their special nature; (2) removing the ST, PT companies; (3) excluding companies with incomplete data. Finally we get samples of 905 listed companies, of which 387 are from Shenzhen Security Exchange and 518 are from Shanghai Security Exchange. Except data about investor protection from the Chinese market index established by Fan Gang and Wang Xiaolu, the other data is from Juyuan database. We use Eviews 6.0 for data processing.

3.2 Model design and variable definition

Taking into consideration the endogeneity, we treat both ownership concentration and investor protection as endogenous variables, and construct simultaneous equations of dynamic panel data to estimate the relationship between them:

$$\begin{cases} share10_{i,t} = \alpha_0 + \alpha_1 share10_{i,t-1} + \alpha_2 protection_{i,t} + \alpha_3 size_{i,t} + \alpha_4 roe_{i,t} & (1) \\ protection_{i,t} = \beta_0 + \beta_1 protection_{i,t-1} + \beta_2 share10_{i,t} + \beta_3 gdp_{i,t} & (2) \end{cases}$$

share10, on behalf of ownership concentration, is the sum percentage of share held by the top ten shareholders, which is similar to LLSV (1998) and Xu and Wu (2006). Referring to the previous approach (Chen Shenglan and Wei Minghai, 2006; Hou Yu and Wang Yutao, 2010), we quote "the development of market and intermediary organizations and the legal institutional environment" indicator established by Fan Gang and Wang Xiaolu. In addition, we use company's size and performance, which are adopted in previous research (Xu Nianhang and Wu Shinong, 2006; Hou Yu and Wang Yutao, 2010), as control variables. The definition of variables is showed in Table1.

Table 1 Variable Definition

Variable	Code	Description
ownership concentration	share10	Proportion of shares held by top ten shareholders
investor Protection	protection	“development of intermediary organizations and the legal environment” indicator score of corresponding province
size	size	Logarithm of total assets
performance	roe	Net profit / total assets
regional economic power	gdp	Logarithm of GDP

3.3 Descriptive statistics

Descriptive statistics for variables is shown in Table 2.

Table 2 Descriptive Statistics (Mean)

Variable	Obs	2002	2003	2004	2005	2006	2007
Share10	905	60.46%	60.02%	60.22%	59.08%	53.76%	52.22%
Protection	31	3.92	4.24	4.50	5.48	5.74	6.37
Size	905	9.4301	9.4863	9.5485	9.6012	9.6899	9.7942
Roe	905	3.91%	4.31%	4.19%	3.30%	5.25%	16.49%
Gdp	31	3.5806	3.6407	3.7215	3.8047	3.8724	3.9459

The descriptive statistics shows that the degree of investor protection is increasing in 2002-2007, while ownership concentration is decreasing. The changes show a negative correlation between them.

4 Empirical Results

4.1 Granger causality test

Table 3 Result of Granger Causality Test

Null Hypothesis:	Obs	F-Statistic
PROTECTION does not Granger Cause SHARE10	3620	40.14***
SHARE10 does not Granger Cause PROTECTION		5.52***

Note: ***represent the significance level at 1%

The Granger causality test result shows both of the original hypotheses are rejected, which means there is two-way Granger causality between ownership concentration and investor protection. The result verifies the speculation of the two-way relationship between them. Also, the following estimation of simultaneous equations provides theoretical support.

4.2 Estimation of simultaneous equations

We use simultaneous equations of dynamic panel data established previously to estimate. Taking into account the existence of lagged values of explanatory variables, and heteroscedasticity and autocorrelation if possible, we choose GMM. Table 4 shows regression results.

Table 4 shows two GMM methods obtain similar results. Also the symbol of each variable is consistent with forecasting. R-sq and adjusted R-sq is 0.8338 and 0.9666 respectively, showing regression equation fits the data well. Discussion for estimation results in details is as following.

4.2.1 The discussion of equation 1

(1) Ownership concentration (share10 (-1)). The coefficient of ownership concentration is 0.9568, and it's significant at the level of 1%, indicating that current ownership concentration is greatly influenced by previous one. The actual situation in our country can be a good explanation. As market economy started late in China, capital markets and the control market are far from mature to format large-scale mergers and acquisitions, so equity transfers relatively difficultly, which results to slow change of ownership structure. However, we find the coefficient of the lagged term is less than 1, indicating that ownership concentration tends to decrease constantly, and this is due to the improvement of relevant mechanisms.

(2) Investor protection (protection). In regression equation the coefficient of protection is -0.0008, indicating that ownership concentration decreases by 0.08% if investor protection increases by one unit. The coefficient is significant at the level of 1%, indicating that there is a significant negative correlation between investor protection and ownership concentration. The result verifies “Ownership Concentration and investor protection alternative hypothesis”. We can make a good explanation for this from the view of agency theory and control theory. From the point of agency theory, shareholders in provinces with weak investor protection such as Gansu, Guizhou and Qinghai of China choose to hold the

large shares and thus have full access to company information, and avoid being deceived by managers. From the view of control theory, stocks offer shareholders some special powers, e.g. arranging people in the board and management to represent their interests, or influencing the company's business plans and investment programs. Therefore in the case of weak investor protection, shareholders focus on investing in individual company, which leads to concentrated ownership^[16]. Conversely, if external markets such as the legal system, capital markets, control markets, product markets and manager markets are complete, and stronger investor protection is provided, investors have more confidence and tend to diversify the investment, thereby resulting to relatively dispersed equity.

Table 4 Result of Simultaneous Estimation

Equation 1 Regression Results		
Variable	GMM-cross section (White cov.)	GMM-time series (HAC)
constant	-0.0322 * (-1.7593)	-0.0338 ** (-1.9634)
share10 (-1)	0.9568 *** (154.5331)	0.9571 *** (156.6543)
protection	-0.0008 *** (-3.3042)	-0.0008 *** (-3.5423)
size	0.0051 ** (2.4001)	0.0052 *** (2.6865)
roe	3.60E-06 *** (5.2469)	3.65E-06 *** (5.7181)
Equation 2 regression results		
constant	-1.1606 *** (-10.2497)	-1.1218 *** (-9.6778)
protection (-1)	1.07432 *** (184.8106)	1.07455 *** (349.2959)
Share10	-0.2589 *** (-3.3334)	-0.2530 *** (-4.1301)
gdp	0.3874 *** (11.7672)	0.3767 *** (12.0566)
	adjusted R ² = 0.97 DW = 2.15	adjusted R ² = 0.97 DW = 2.7854

Note: Brackets values are t-statistics for the estimated coefficients, ***, **, * represent the significance level at 1%, 5%, 10% respectively.

(3) Control variables. Ownership concentration is significantly positively correlated to firm size, indicating that larger companies tend to have more dispersed equity structure. One interpretation is that with the expansion, the companies require stronger control, and therefore leads to a higher degree of ownership concentration. Ownership concentration and corporate performance (roe) also showed a significant positive correlation.

4.2.2 The discussion of equation 2

(1) Investor protection (protection (-1)). The coefficient of investor protection is 1.0743, and is significant at the level of 1%, indicating there is a significant positive correlation between previous and current investor protection. Because inputs on the legal system and relevant external market come with lag effects. The coefficient of greater than 1, indicating that China continues to strengthen investor protection, which is consistent with the results showed in table 2.

(2) Ownership concentration (share10). The estimated coefficient of ownership concentration is -0.2589, which is significant at the level of 1%. The reason may be as following: in the region with dispersed ownership, the government accelerates the improvement of the legal system and the external market mechanism in order to protect the interests of investors, which leads to strong investor protection; when ownership is concentrated, block shareholders are able to monitor managers and influence corporate decision making, which results to less agency problems against the interests of investors. Therefore, the government is less pressed to speed up legislation, strengthen law enforcement and improve the external market, leading to weaker investor protection.

(3) Region economic power (GDP). The greater economic power of a region is, the more money can be spent to protect the interests of investors. As transactions increase, related government departments also have the ability and motivation to enhance investor protection, and thus investor protection in this region is strengthened, which is reflected by significant positive regression coefficient.

5 Conclusion

In this paper, by using Chinese A-share listed companies in 2002-2007 and building simultaneous equations of dynamic panel data including ownership concentration and investor protection, we empirically analyze the relationship between them after solving the problem of endogeneity. The results show that investor protection and ownership concentration are significantly negative correlated, and the negative relationship is two-way, i.e., lower investor protection leads to higher ownership concentration, and it leads to a lower degree of investor protection. With the improvement of investor protection, ownership concentration tends to decrease, while the dispersed ownership structure further promotes the demand for high investor protection, leading to further enhance investor protection. Therefore, this paper provides more evidence to further validate and enrich “Ownership Concentration and investor protection alternative hypothesis” proposed by LLSV (1998).

As can be seen from the above analysis, there are two ways for investors to protect their own interests: to increase their shares and increase the level of protection. The former approach can be achieved on their own, but they must pay the corresponding costs; the latter one, such as speeding up legislation, improving law enforcement and external markets, is the responsibility of the government. It can be seen from the 2002-2007 ownership concentration decreases year by year, and share split reform in 2005 also further promotes circulation and dispersion of equity. During the process, the government must enhance investor protection, which is good for healthy development of capital markets in China.

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