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An Empirical Study on Institutional Investors, Free Cash Flow and Over-investments

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Abstract: Free cash flow is one of the factors that influence over-investments. Due to information asymmetry, Chinese listed corporations' unreasonable ownership structure and limited corporate governance, to satisfy the company management's needs, they abuse free cash flow to expand investment projects and enlarge their controlling desire, which caused serious excessive investment consequences. With the shareholding ratio and their own professional advantages, institutional investors have a restrictive effect upon the over-investment of free cash flow. Based on the analysis of excessive investment related hypothesis, this paper analyzed A-share listed corporations in China's Shanghai and Shenzhen Stocks Exchange from 2008 to 2012. The results revealed that free cash flow and over-investments had a significant positive correlation, and the institutional investment ownership and free cash flow had a negative correlation, which had a certain binding force on the company's over-investments.

Key words: institutional investors; free cash flow; over-investments
JEL codes: G34, G30, M41

1. Literature Overview

1.1 Over-Investments Hypothesis

1.1.1 Free cash Flow Hypothesis and Over-investments

According to Jensen's definition (1986), the free cash flow is the remaining amount of cash after the company pays the investment whose net present value (NPV) is positive. He believes the large amount of the free cash flow of a company increases the potential for over-investments. The sensitivity of free cash flow naturally becomes the focus between management and shareholders, major shareholders and minority shareholders. Especially under the information asymmetry and principal-agent problems, the possession, abuse and emptying of the free cash flow becomes the outstanding problem of the company. Lang and Lizenberger (1991) put forward that the large amount of free cash flow would make the management choose some investment projects with the negative NPV. Miguel and Pindado (2001) found that companies with high free cash flow had a tendency to

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over-investments. Zhang Gongfu (2007) found through the survey, the 18.92 percent of free cash flow in the sample was used to over-investments. Vogt (1994), Richardson (2006) demonstrated over-investments is mainly concentrated in the company with high free cash flow.

1.1.2 The Irrational Investment Hypothesis and Over-investments

Liu Xing (2011) proposed a concept of non-finite rational investment. In his opinion, irrational investment behavior of listed companies was mainly demonstrated the operating decision maker, in order to maximize personal gains, achieved over-investments by changing the internal system, affecting the operation mechanism design, interfering with decision-making procedures, etc. Pan Min and Jin Yan (2003) found that the managers of some listed companies in China obtained funds by equity financing in order to invest into the low-profit projects with which the companies are not familiar or the projects that the main business of the company had nothing to do with.

1.1.3 The Manager Trait and Over-investments

The manager trait is the relatively stable psychological and behavioral characteristics related to managers' personality and working experience demonstrated by the company managers in decision-making activities. The characteristics will have some impact on the management style, the corporate culture, business objectives as well as investment decisions.

(1) The power expansion of managers. The rational economic man refers to the economic decision-making body full of rational pursuit, of which the fundamental objective is the profit maximization. The management, in order to achieve the maximization of their own interests and satisfy their desire to control and expand the power of controlling resources of others and create a personal empire and enjoy increased job scope, often invest in some low-income or non-related projects leading to the company deviating from the main direction of industrial development, then the inefficiency and over-investments through diversified investment or expanding the business scale by merger.

(2) The overconfidence of managers. Managers are in the management decision-making positions in the long term, which makes them decide based on their individual state of mind. At the same time, the managers often exhibit confidence to establish the personal management authority. However, for a long time, such confidence will lead to managers create false sense of power, and exhibiting irrational characteristics in the management decision-making. Roll (1986), Heaton etc. (2002) pointed out that the managers often exhibit self-righteousness and overestimate their expectations of merger decisions, thereby increasing financial risk because of their optimism or overconfidence. Hao Ying, Liu Xing and Lin Zhaonan (2005), Ye Bei and Yuan Jianguo (2008) demonstrated the overconfidence of management would lead to over-investments especially in merger of companies through the association of the managers' confidence with company investment value.

(3) The attribution to external factors. In general, managers tend to prefer success and profits, loathe failure and loss. Even they find loss in the investment project, they would rather continue to increase investment, than stop investing by recognizing individual mistakes of decision making. Moreover, they will shift the responsibility to other external causes. Edward Conlon (1987), Shefrin (2001), Guedj and Scharfstein (2004) suggested that the managers would never give up when facing with the loss of the investment project and they would tend to increase the investment with the expectation of profits because of the external factors or the underinvestment problems. Ai Mingye and Qi Zhongying (2006) proposed the irrational factors, such as emotional factors, of decision makers had great influence on deciding whether to increase investment or stop the project.

1.2 Institutional Investors' Role in Controlling Over-investments

In case of information asymmetry in China, company shareholders and other stakeholders mainly supervise the managers through the general meeting of shareholders, board of directors, board of supervisors and other internal governance and capital market supervision, product market competition, manager market, market and other creditors. Because the shareholder and the company management are in different positions, in the premise of supervision and measurement of costs and benefits, the shareholders' and creditors' supervision of the initiative and ability are different, which causes their different role in restricting over-investments.

(1) Controlling shareholders and over-investments

In comparison, the controlling shareholders have more motivation and ability to supervise the management of the company decision-making and to prevent the management of excessive investment, which effectively help protect the interests of shareholders. However, in order to maintain their own interests, the controlling shareholders may act in collusion with the management through excessive investment to gain additional benefit. Shleifer & Vishny (1997) found that if the controlling shareholder in the proportion of shareholding can influence or control the company investment decisions, they will ignore the interests of small shareholders, access the related party transactions through over-investments, transfer the corporate resources, sharing common interest. Meng Yilin's (2009) an empirical study shows that when large shareholders are beyond a certain level in the proportion of shareholding, the inhibition of over-investments would be reduced. At the same time, the purpose for personal benefit would cause much more over-investments.

(2) Creditors and over-investments

Governance of creditor's rights is an important way of external corporate governance. Creditors' sensitivity of the cash flow investment is relatively higher. They pay more attention to the debt fund security and the interests return stability. Governance of creditor's rights is divided into short-term debt and long-term debt governance. In contrast, short-term debt has more strength than the long-term debt constraints. Huang Qianfu (2009) carried out an empirical research on 206 companies' cash flow with non efficiency investment in manufacturing industry from 1997 to 2004. They found that the debt ratio and corporate over-investments spending have a significant negative correlation, which shows that the debt of commercial credit has constrained the enterprise's over-investments. Because of the particularity and the immature financing environment of China's listed corporations, the debt effect is restricted.

(3) Effective role of institutional investors upon over-investments

Lakonishok and Shleifer (1997) argue that institutional investors have strong motivation to monitor the company's management. They can enable managers to maximize shareholders value as the management goal and avoid the company's over-investments. Song Chang (2010) start from the analysis of the company business of information disclosure and put forward that the institutional investors can improve the level of voluntary disclosure, which helps to reduce the degree of information asymmetry, enhance corporate transparency, so as to relieve the over-investments.

1.3 Institutional Investors' Ways to Control Over-investments

(1) To make use of the right to speak and to participate in corporate investment decision.

Compared to the medium and small shareholders, the institutional investors owning high shareholding in corporate investment have a certain right to speak. Through proxy voting activities, they adopt the way of collecting shareholders' proposals and other ways to strengthen their resolution authority. They also maintain the interests of small and medium-sized shareholders, collecting the information on the company investment projects.

By assessing the risk and analyzing the potential investment benefit, we put forward effective opinions on the tendency of investment, thereby reducing the company's management of blind investment, over-investments and some other non-rational decisions.

(2) To make effective dividend policy and to reduce the stock of free cash flow.

Jansen (1986) supposed that it is necessary to encourage the managers to spit out the cash and decrease the stock of free cash flow through shareholding distribution to reduce the agency costs of free cash flow. Eckbo, Verma (1994), Short, Zhang, Keasey (2002) and Tang Xuesong (2007) have demonstrated the company dividend is positively correlated to the institutional investors. The institutional investors tend to manage the free cash flow for company dividends and they have the supervision ability and motivation to supervise the distribution of cash, which would reduce the agency cost caused by free cash flow.

(3) To supervise the external capital market and to reduce the possibility of a company's over-investments. Institutional investors' fund transaction behavior in the external capital market may affect the company's market value fluctuation. Therefore, it will affect the company's refinancing market and restrict the corporate over-investments. Zeckhauser and Pound's (1990) study showed that, institutional investors often forced the company to increase the dividend payments to reduce free cash flow, so that its subsequent financing would under the supervision of the external capital market, instead of institutional investors.

2. Research Design

2.1 Hypothesis

Over-investments is a company's inefficient investment, which reflects the phenomenon of abusing free cash flow. Free cash flow of a company provides the necessary foundation for the company's management over investment. Therefore,

Hypothesis 1: *Free cash flow and over-investments are positively correlated.*

With the increase of the proportion of institutional investors' investment, institutional investors' "Shareholder Activism" has played a more and more important role. According to the above researches, institutional investors have a great influence upon the corporate over-investments. In this case,

Hypothesis 2: *Institutional investors' holding and over-investments are negatively correlated.*

2.2 Research Approach

According to Xin Qingquan (2007), Cao Chongyan (2012), firstly we set up the estimation model of over-investments, and calculated the firm's over-investment, that's, the total investment expenditures minus the maintenance investment and added appropriate investment. If the expenditures is more than zero, the over-investments occurs. If not, there is no over-investment. Based on these, the related model is test.

2.3 Sample Selection

This paper selected A-share companies in Shanghai and Shenzhen during the period of 2008-2012. To avoid the effects of anomalous values, we eliminated (1) all the listed corporations of class ST, finance and insurance; (2) all the listed corporations with negative ratio rate on net assets, free cash flow and net capital investment amount; (3) all the listed corporations with anomalous values of net assets, free cash flow and other index. The final samples obtained the data of 980 companies, 196 per year. The data is from the China Tai'an database (CSMAR), SSE database and LLS SEC filings. Excel, SPSS and Stata10.0 were used for regression analysis.

2.4 Variable Settings

	Variables	Definition of the Variables and Its Calculation formula	Sign
Dependent variable	Capital investment level	The sum of fixed assets, construction and engineering goods in t year, annual net increase value of intangible assets and long-term investment, divided by total assets at the beginning in order to eliminate the influence of scale	Inv_t
	Over-investments	The over-investments in t year, the same as regression residuals which are more than 0 in Model (1)	$Overinv_t$
Independent variable	Free cash flow	The free cash flow in t year. Fcf = (Cash flow from operating activities + net cash received from issuance of bonds + cash received from borrowings - cash payments for debt - cash payments for distribution of dividends or profits or the payment of interests)/total assets	FCFt
Control variable	Stock return	Annual stock return of cash dividends at the end of t-1 year	RET_{t-1}
	Cash holding	Cash holding ratio at the end t-1 year, that's, (Money + short-term investments)/total assets at the end of the year	$Cash_{t-1}$
	Asset-liability ratio	Asset-liability ratio at the end of t-1 year, liability/asset	Lev_{t-1}
	Investment opportunity	On behalf of the enterprise growth opportunities, that's, market value/total assets at the end of the year	Tobin-Q
	Year	The years of being public the end of t-1 year	Age_{t-1}
	Company size	Natural logarithm of the total assets of the company the end of t-1 year	$Size_{t-1}$
	Industry factor	Regard industry as a dummy variable. If it's the manufacturing industry, the value is 1, otherwise, the value is 0.	Ind

2.5 Establishment of Models

Based on the above analysis and hypothesis, we separately established Model 1, Model 2 and Model 3 to calculate the company's moderate investment level, the correlation between free cash flow (FCF) and over-investments and the relation between institutional investors and over-investments.

Model 1:

$$INVt = a0+a1Tobin\text{-}Q_{t-1}+a2Lev_{t-1}+a3Cash_{t-1}+a4Age_{t-1}+a5Size_{t-1}+a6Ret_{t-1}+a7Inv_{t-1}+\sum Industry+\varepsilon$$

Model 2:

$$Overinvt = \beta o+\beta 1FCF+\beta 2Levt\text{-}1+\beta 3Age+\sum Industry+\varepsilon$$

Model 3:

$$Overinvt = \beta o+\beta 1insit+\beta 2\ Levt\text{-}1+\beta 3Age+\beta 4Size_{+}\sum Industry+\varepsilon$$

2.6 Analysis of the Tests

2.6.1 Descriptive Statistical Analysis of the Main Variables

As shown in Table 1, China's listed corporations have been public for more than 8 years. The average scale of the company is about 22.46. The debt levels reached 52% and the debt management is the main channel of China's listed corporations for financing. The overall level of corporate investment is not high and the annual average amount of capital investment is 12.65% of the total assets at the beginning. The stock return of the cash dividend in this year is 57.88% on average, but the minimal is still within negative, which shows that the large fluctuation rate of the company stock market. The stock of free cash flow is relatively large, but the average level is 52.34%. The proportion of institutional investors is not high, at around 20.17% on average. The state-owned holding is still remarkable feature of ownership structure in China listed corporations.

2.6.2 Regression Analysis

(1) According to the regression coefficient of Model 1 in Table 2, we can calculate the moderate investment

level of a company in t year and the amount of a company's over-investments, which is represented by overinv. If overinv is positive, it reflects over-investments; otherwise, it reflects inadequate investment. The results reveal that 425 of the overinv is positive, which accounts for 40% of the total samples.

Table 1 Description of the Main Variables

Variables	Sample quantity	Mean	SD	Minimum	Maximum
invit	980	0.12635	0.170546	0.000397	2.006523
Levt-1	980	0.522324	0.166565	0.056303	1.151196
Casht-1	980	0.158456	0.10242	0.003304	0.619313
Tobin-Qt-1	980	1.902981	1.20963	0	10.85267
Sizet-1	980	22.46116	1.266051	19.7888	27.75329
Aget-1	980	8.260204	4.165701	0	19
Rett-1	980	0.578848	1.296222	-0.85198	7.124249
Fcft-1	980	0.523437	0.422467	0	6.089012
Insit	980	20.17133	17.32095	0	88.3573
overinv	980	4.66E-11	0.311285	-0.70911	1.86149

Table 2 Regression Coefficient of Over-investments Model

Variables	Tobin-qt-1	levt-1	casht-1	Aget-1	sizet-1	RETT-1	invit-1	Intercept	Industry
	0.012**	0.026**	-0.108	-0.001***	-0.002**	0.008**	0.088	0.175	Control

Notes: "***" refers to a significance level of 1%; "**" refers to a significance level of 5%; "*" refers to a significance level of 10%.

(2) According to the regression coefficient of 425 samples of Model 2 in Table 3, free cash flow (fcf) and over-investments (overinv) were positively correlated. The p value, 0.004, shows that they are significantly correlated. Consistent with the above literature review, the higher the free cash flow is, the larger the over-investments will be.

Table 3 The Constraint Effect of FCF upon Over-investments

overinv		coefficient	SD		T value	P value
	(Constant)	0.253	0.055		4.627	0.000
	FCF	0.090	0.031	0.132	2.876	0.004
1	level	0.273	0.084	0.148	3.254	0.001
	Age	-0.008	0.004	-0.107	-2.302	0.022
	hy	-0.227	0.026	-0.402	-8.761	0.000

(3) According to the regression results of Model 3 in Table 4, the institutional investors' holding and over-investments are positively correlated at 0.1 significance level. Institutional investor shareholding proportion coefficient is 0.0012, which reflects that the institutional investor reflection coefficient has little effect on holding excessive investment and shows that the ownership proportion of China's listed corporations is still low among the ownership structure. Meanwhile, it also restricts the balance between the institutional investors and the corporate's over-investments in a large extent.

Table 4 The Constraint Effect of Institutional Investors' Holding upon Over-investments

overinv	coefficient	SD		T value
inst	0.0012165	0.0007378	1.65	0.1
cash	-0.7632444	0.1939271	-3.94	0
level	-0.0348358	0.1454687	-0.24	0.811
size	0.4520092	0.0458803	9.85	0
Constant	-10.30346	1.058991	-9.73	0
R-sq	0.402			
F value	12.97			

3. Conclusions and Considerations

To sum up, through the continuous development of China's capital market during the past years, China has improved the development policy of institutional investors. The institutional investors "Shareholder Activism" has gradually played an effective role in corporate governance. However, the fact that most of our listed companies are originally restructured from state-owned enterprises, there are still the "dominance" problems in the capital market, such as the state-owned holding, its substantial absence, and the maintenance of the state-owned listed companies' "tunneling" function etc. The corporate governance structure needs to be further perfected. Therefore, solving the problem of institutional investors participating in corporate governance will largely depend on the mandatory supporting of national policy, as well as the supporting policy for the scale of investment and the proportion of institutional investors' shareholding. In this way, we would increase institutional investors' confidence on the capital market investment and promote the institutional investors' position in corporate governance. Of course, the institutional investors' existing double principal-agent relationship and its shows that the "herding" affect cause the supervision and regulation of the government or industry. Thus, we need to improve the relevant policies and regulations and correctly guide the institutional investors to play a positive role in the maturity development of China's capital market and the optimization of corporate governance structure.

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