

# Management Overconfidence, Investor Sentiment and Corporate Performance-Evidence from A-share Listed Companies in China

Fang Hu

School of Management, Shanghai University 200444, China

hufang201509@163.com

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**Abstract:** Based on the behavioral finance theory, this paper takes China's A-share listed companies from 2012 to 2016 as the research object, empirically tests the relationship between management overconfidence and corporate performance, and the regulating effect of investor sentiment on both. The results show that there is a significant negative correlation between management overconfidence and corporate performance. In addition, the higher the investor sentiment, the more significant the negative correlation between management overconfidence and firm performance.

## 1. Introduction

Previous studies have found that corporate governance, asset-liability ratio, enterprise scale and cash flow ratio are all factors that can affect corporate performance. However, these studies are based on the traditional financial accounting theories which was established under the hypotheses of "rational economic man" and "efficient capital market". With the appearance of large-scale mergers and acquisitions, excessive investment, low level of cash dividend and no cash dividend distribution, the "rational economic man hypothesis" began to be doubted.

According to the behavioral finance theory, under the influence of factors such as fuzzy reference point of decision making, Managers is more prone to be overconfident. In fact, not only internal managers, but also irrational investors in the external capital market will influence the business management decisions. In China's capital market, the majority of investors whose investment decisions will result in the company's stock price and its actual value deviation are irrational. At present the stock market of our country still belongs to weak effective market, which cannot rectify the deviation and will affect the decision-making behavior of listed companies (Guiru Hua, 2011) [1].

At present, the theoretical circle studies management overconfidence and investor sentiment separately. One kind of research focuses on the irrationality of investors, and assumes that managers are completely rational. The other is that investors are completely rational in advance, focusing on how management's own irrational behavior will affect its own decision-making and enterprise performance. But in reality, management and investors are not entirely rational at the same time. Therefore, the study of behavioral finance has not completely abandoned the hypothesis of "rational economic man". In order to be more realistic, this paper based on the basis of literature such as shleifer (1998) [2] considers the irrationality of management and investors at the same time and research on the following questions: Is there a connection between management overconfidence and enterprise performance? How does investor sentiment affect both?

## 2. Literature review and research hypothesis

### 2.1. Research on management overconfidence and corporate performance

The concept of overconfidence comes from psychology. According to relevant research of psychology, people are more likely to overestimate the probability of success and underestimate the

risk of decision making. This cognitive bias is identified as overconfidence (Barberis N, Thaler R, 2003) [3]. The conceit hypothesis put forward by Richard Roll (1986) [4] shows that managers with overconfidence tend to have a higher expected value of the acquired company than its actual value, thus resulting in a higher consideration paid than the real value, which in turn has a negative impact on the economic interests of the company. J.B. Heaton (2002) [5] believes that management with overconfidence tendency, even if they are completely loyal to shareholders and dutiful to the company, may choose projects with negative net present value because of the high profit expectation for some projects, thus affecting the development of the company.

Domestic research is from the perspective of investment and financing decision. From the perspective of investment decision, Fuxiu Jiang et al (2009) [6] believed that the overconfidence of managers has a positive relationship with the internal expansion range of enterprises, and the cash flow has a moderating effect on the above two. From the perspective of financing decision, Minggui Yu, et al. (2006) [7] research shows that managers overconfidence brings to the enterprise's debt ratio significantly positive effect, managers will underestimate the financing risk, and then choose the presentment of debt financing, may lead to the future of the company increased difficulties of financing, and bring adverse effect to the economic interests of the company.

Based on the research in the above literature, the managers with overconfidence tendency tends to overestimate the return of the project and underestimate the risk of the project, and then adopts the behavior of large-scale merger and acquisition, excessive investment and aggressive debt financing, which will have a negative impact on enterprise performance. Therefore, this section makes the following assumptions:

**Hypothesis 1:** Management overconfidence affects corporate performance and there is a significant negative correlation between them.

## **2.2. Research on management overconfidence, investor sentiment and corporate performance**

Investor sentiment refers to the situation where irrational investors overestimate or underestimate stock prices and deviate from equilibrium values in a certain direction within a certain period of time. Hatfield and Cacioppo (1994) put forward that in the process of interpersonal communication, mutual emotions will be unconsciously infected. Nofsinger (2005) concluded that managers' own emotions would be infected by investors' emotions in the capital market, and their behaviors would also be disrupted.

The so-called pandering effect is that when the external irrational investors have a large deviation between the expected value and the actual value of the company, the management's decision may be a series of actions to conform to the investors' expectations. The research of Barberis and Thaler (2003) found that when management considers various objective factors comprehensively and still has difficulty in making choices, investor sentiment may become an important factor for management to make the final decision. The external investors may eventually aggravate the degree of irrational decision-making of the managers. Baker et al. (2006) believe that both internal managers and external investors are irrational and should be considered at the same time.

Based on the above research, the irrational behavior of investors will lead to an increase in the level of overconfidence of the managers, which will affect its subsequent financial decisions and cause an adverse impact on the company. Based on the above theoretical analysis, this section makes the following assumptions:

**Hypothesis 2:** The higher the investor sentiment, the stronger the negative relationship between management overconfidence and corporate performance.

## **3. Research design**

### **3.1. Sample selection and data sources**

This paper takes China's A-share listed companies from 2012 to 2016 as the research object. To

ensure the validity of data, the following screening is conducted: (1) companies excluding ST and \*ST;(2) eliminate the data of CEO change in the sample year;(3) eliminate sample companies with missing data. Considering the impact of outliers, Winsorized all the continuous variables at the 1% and 99% levels. The financial data of earnings forecast in this paper is from WIND database, and the data of enterprise performance are from RESSET database. In this paper, statistical software STATA13.1 is used for regression analysis.

### **3.2. Variable Design**

#### **3.2.1. Independent variable.**

This paper uses the method adopted by Yan Zhu et al. (2013) [8] to select ROA as the alternative indicator of enterprise performance. Then, Tobin's Q was used to test the robustness of the model.

#### **3.2.2. Dependent variable.**

Based on the research designs of Mingguai Yu (2006) and Guangguo Sun (2014) [9] this paper selects the surplus prediction deviation of enterprises as the alternative index of management overconfidence, and then selects the change of management shareholding ratio to test the robustness of the model. In the company issuing optimistic performance forecast in the third quarter, if the expected performance of the management exceeds the actual 50%, the management is overconfident, and the value is one; otherwise, it is zero. As China's company law and China securities regulatory commission have strict regulations on the number of shares held by the management of listed companies, considering the risk factors, only when the managers expect the company's performance to steadily increase, will they choose to increase the shares of the company, otherwise the managers tend to choose the stocks of other companies for investment. Therefore, if the manager chooses to increase the stock of the enterprise, and the increase of the stock is not caused by the dividend, it belongs to the overconfidence of the management. The value is one, otherwise it is zero.

#### **3.2.3. Adjustment variable.**

Referring to the methods of Guiru Hua (2011), the half-year momentum effect indicator was used as the alternative variable of investor sentiment. Specifically, the cumulative monthly yield of stocks from July to December of the previous year was used to measure investor sentiment, namely:

$$\text{SentIn}(t) = \sum R(t-1), I$$

Where,  $t$  stands for year,  $i$  stands for month, and  $R$  stands for the monthly return rate of individual stocks that enterprises consider reinvesting cash dividends. If  $\text{SentIn}(t)$  is greater than zero, then investor sentiment is high. While  $\text{SentIn}(t)$  is less than zero, investor sentiment is low.

#### **3.2.4. Control variable.**

Referring to the previous research results, this paper sets the control variables from the overall financial characteristics of the company and the corporate governance structure. The first group is the variables of the overall financial characteristics of the company, including the asset-liability ratio, enterprise scale, enterprise growth capability and cash flow ratio. The second group is the control variable of corporate governance structure, including proportion of independent directors and ownership concentration. Considering the possible interference of different years, this paper also sets five annual dummy variables.

Table 1. Variable Design.

Variable	Variable Name	Variable Definitions
Independent variable	Rate of return on total assets (ROA)	Net profit / total assets
	Tobin's Q	Market value / replacement cost of the business assets (for robustness test)
Dependent variable	Management overconfidence (OVC1)	Profit forecast deviation
	Management overconfidence (OVC2)	Change of management shareholding ratio (for robustness test).
Adjustment variable	Investor sentiment (SENT)	$Sentln(t)=\sum R(t-1), i$
	Asset-liability ratio (LEV)	Total liabilities / total assets
	enterprise scale (LNSIZE)	Take the natural log of the total assets
	Enterprise growth capability (GRO)	Revenue growth rate for the year
Control variable	Cash flow ratio (CASH)	Net cash flow of operating activities / current liabilities
	Proportion of independent directors (ID)	Number of independent directors / Numbers of board members
	Ownership concentration (SHARE)	Number of shares held by the largest shareholder / the total number of shares
	Annual dummy variable (YEAR)	From 2011 to 2016
	Random error term( $\varepsilon$ )	

### 3.3. Model

Based on the research of Yudan Wang (2016) [10], this paper constructed the following model to verify Hypothesis 1:

$$ROA = \beta_0 + \beta_1 OVC + \beta_2 LEV + \beta_3 LNSIZE + \beta_4 GRO + \beta_5 CASH + \beta_6 ID + \beta_7 SHARE + \beta_8 YEAR + \varepsilon \quad (1)$$

Based on the research of Jia Chen (2015) [11], this paper constructs the following model to verify Hypothesis 2:

$$ROA = \beta_0 + \beta_1 OVC + \beta_2 SENT + \beta_3 (OVC * SENT) + \beta_4 LEV + \beta_5 LNSIZE + \beta_6 GRO + \beta_7 CASH + \beta_8 ID + \beta_9 SHARE + \beta_{10} YEAR + \varepsilon \quad (2)$$

## 4. Empirical test and result analysis

### 4.1. Descriptive statistics

We performed descriptive statistics on the variables studied, as shown in Table 2, the mean value of the management overconfidence variable is 0.1352 and the standard deviation is 0.3420, which reflects the overall pessimistic management sentiment in the capital market. In addition, the mean value of investor sentiment variable is 0.0919, with a maximum value of 5.46 and a minimum value of -0.8715, and the difference between the two is 6.3315, indicating that the overall investor sentiment is optimistic.

Table 2. Descriptive statistics of variables.

Variable	Observations	Mean	Minimum	Maximum	Standard Deviation
ROA	4489	0.0408	-1.5229	0.5746	0.0741
OVC	4489	0.1352	0	1	0.3420
SENT	4489	0.0919	-0.8715	5.46	0.3670
LEV	4489	0.0038	0.0001	0.1213	0.0039
CASH	4489	0.2800	-3.9708	8.6643	0.6080
GRO	4489	0.0084	-0.0099	18.7837	0.2980
LNSIZE	4489	21.5814	17.0487	26.7512	1.0073
ID	4489	0.3840	0	0.8333	0.0973
SHARE	4489	0.3346	0.0389	0.8890	0.1424

## 4.2. Regression analysis

To test if hypothesis 1 is correct, this paper takes the profit forecast deviation as alternative indicators of managers overconfidence and total assets of yields as alternative indicators of corporate performance. As shown in Table 3, management overconfidence coefficient is -0.0999, the t value is -41.90, and significant is at the 1% level,  $R^2$  of model one is 0.4955, F value is 628.83, which indicates that the regression equation has a good fitting degree and managers overconfidence have significant negative impact on the corporate performance. That just validates hypothesis 1. To verify hypothesis 2, the half-year momentum effect indicator was used as the alternative variable of investor sentiment. Managers overconfidence and investor sentiment multiply by the interaction of the links in the regression equation. As shown in Table 3, management overconfidence and investor sentiment interaction coefficient is -0.0175, t value is -2.72, the 1% level significantly, which verified the hypothesis 2. Namely when the investor sentiment is higher, the negative relationship between management overconfidence and corporate performance is more significant.

Table 3. Regression results.

Variables	Model (1)	Model (2)
Constant	-0.0410 <sup>**</sup> (-2.30)	-0.0421 <sup>**</sup> (-2.37)
OVC	-0.0999 <sup>***</sup> (-41.90)	-0.9831 <sup>***</sup> (-41.28)
SENT		0.0160 <sup>***</sup> (6.97)
OVC*SENT		-0.0175 <sup>***</sup> (-2.72)
LEV	-6.1100 <sup>***</sup> (-28.74)	-6.1024 <sup>***</sup> (-28.81)
CASH	0.0260 <sup>***</sup> (19.36)	0.0257 <sup>***</sup> (19.21)
GRO	0.0009 (0.33)	0.0007 (0.26)
LNSIZE	0.0047 <sup>***</sup> (5.84)	0.0047 <sup>***</sup> (5.87)
ID	-0.0008 (-0.10)	-0.0025 (-0.31)
SHARE	0.0323 <sup>***</sup> (5.80)	0.0322 <sup>***</sup> (5.81)
YEAR	Control	Control
N	4489	4489
R2	0.4955	0.5010
F	628.83	499.60

Note: \*, \*\* and \*\*\* are significant at 0.1, 0.05 and 0.01 level, respectively.

## 4.3. Robustness test

In order to verify the reliability of the above empirical test results, the robustness test was added. First of all, whether the main variable can be correctly measured is the important factor that determines whether the conclusion of this paper is accurate. Therefore, in the robustness test, we used the method of Yan Zhu et al. (2013) to select Tobin's Q instead of total asset yield rate to measure corporate performance. In addition, we use the method of Guangguo Sun (2014) for reference to choose the change of management shareholding ratio as a measure of management overconfidence. If the management chooses to increase the stock of the company, and the increase is not caused by the company's dividend, it is defined as the overconfidence of the management, with a value of one; otherwise, it is zero. After verification, the final result is consistent with the above.

## 5. Conclusion

Different from the existing literature, this paper completely abandons the hypothesis of "rational economic man", and empirically tests the correlation between management overconfidence and enterprise performance and the regulating effect of investor sentiment on both. The results show that there is a negative relationship between management overconfidence and enterprise performance. Overconfident managers can cause an overinvestment situation that hurts the

company's value. In addition, the manager's emotions are easily affected by the investor's emotions, and the high investor emotions will aggravate the overconfidence tendency of the management, that is, the higher the investor's emotions are, the stronger the negative relationship between the overconfidence of the management and the enterprise performance will be.

The results of this paper not only provide new empirical evidence for the study of behavioral finance, but also further expand the literature on the relationship between management overconfidence, investor sentiment and enterprise performance. In view of the irrational behavior of managers and investors, relevant regulatory authorities should strengthen supervision and restraint, establish and improve the decision-making mechanism of the company, and maintain the healthy and orderly development of the capital market.

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