Essays on Information Asymmetry in Equity Market

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ESSAYS ON INFORMATION ASYMMETRY IN EQUITY MARKET

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Information asymmetry is a common phenomenon everywhere. This dissertation studies this phenomenon through observing the equity market both in the developed country and in the emerging market and observing both the initial price offering market and the secondary equity market.

Chapter one develops a simple model that relates the clustering of IPOs to moral hazard. The number of IPOs in the economy is shown to be a decreasing function of agency costs. The paper uses a framework in which agency costs linked to entrepreneur net worth are related to the business cycle. It is shown that when business activity is high(low), agency costs from moral hazard are low(high). Then, our model yields the stylized fact that the number of IPOs is highest around equity prices' peaks. Based on the data from 1970 to 2008, it is found that the current ratio, the quick ratio, and the cash ratio are positively related to the number of IPOs in the economy, and that the number of bankruptcy filings is negatively related to the number of IPOs in the economy.

Chapter two studies a phenomenon in China's stock market. Listed firms bought and sold other listed firms in 2007 when the market was booming so that their net earnings were boosted. The paper finds that those that participated in these stock transactions and relied heavily on these earnings in 2007 benefited from the booming stock market and had positive growth in investment income in 2007, which lead to

positive growth in net earnings in 2007. These firms suffered from the declining stock market in 2008 and had a negative growth rate in investment net income in 2008 and, thus, a negative growth rate in net earnings. This earnings reversal is proved by the smaller earnings persistence of investment net income than that of main operating income. The stock price acts as if investors correctly understand the information in the main operating income and the investment net income jointly.

BIOGRAPHICAL SKETCH

Born in Nanjing China, Luyang spent 22 years in this beautiful city. She studied International Business Communication for my undergraduate degree at Nanjing University. This is an interdisciplinary program that allows her to train my English language from listening and reading to speaking and writing but also gives her the opportunity to taste every subject in the business management filed. This interdisciplinary concept motivates her in later stage of life to explore more between subjects and fosters her creativity. After she got her bachelor degree, she came to the US and started the second phase of her life. She started at Northeastern University in Boston to study Economics for her master degree. Motivated by the idea of equipping herself with a systematic training in doing researches on real world issues related to China, after her master degree, she came to Department of Applied Economics and Management at Cornell University to pursue her Ph.D. degree. Benefited from my undergraduate interdisciplinary program and encouraged by the interdisciplinary learning environment at Cornell, I gained great exposure to various fields during her graduate study and managed to get this far with this dissertation. With great support and guidance from her dissertation committee, she achieved her Ph.D. degree. This great honor will lead her to a new phase of life ahead.

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IPO: Initial Price Offering

NPV: Net Present Value

GDP: Gross Domestic Product

CPI: Consumer Price Index

RMB: RenMinBi

CHAPTER 1

IPO CLUSTERING: A MORAL HAZARD EXPLANATION

1.1 Introduction

IPO clustering is an important phenomenon that is studied in the Initial Public Offerings (IPOs) literature. The purpose of this paper is to propose and test a formal model that explains why IPOs cluster around equity peaks. The literature has suggested one major explanation, market timing, but this paper offers a new explanation and explores the mechanism behind IPO clustering from a moral hazard perspective.

Many empirical studies have demonstrated that IPOs cluster in time, particularly at equity peaks. Ibbotson and Jaffe (1975) and Ibbotson, Sindelar, and Ritter (1988,1994) show the fluctuation of the numbers of IPOs. Loughran and Ritter (1995), Gomper and Lerner (2001), Ritter and Welch (2002), Lowry and Schwert (2002) and Lowry (2003) graph yearly and monthly numbers of IPOs, and demonstrate the existence of IPO cycles in various time periods from as early as 1935 to 2001. Moreover, it has been found that IPO market cycles tend to move with economic cycles. Marsh (1982) suggests that firms tend to issue equity when the stock market is at its peak. Choe, Masulis, and Nanda (1993) shows that firms' equity issuance is positively related to business cycle variables. Loughran, Ritter, and Rydqvist (1994) shows that, in most countries studied, equity financing clusters at equity peaks.

The explanation for IPO clustering in the literature has focused on whether the firm or the underwriter has timing ability. Lucas and Mcdonald (1990) suggests that firms know when they are undervalued and when they observe that the bear market tends to give them a low price, firms choose to wait for the coming of the bull market which gives more favorable price. This story indicates the firm's ability of identifying

when it is undervalued. Since that study, studies proposing firms' ability of identifying when they are overvalued have appeared. Ritter (1991) documents the long-run underperformance of IPO firms compared to a portfolio of matched firms and indicates that issuers have the timing ability to take advantage of "windows of opportunity". Loughran and Ritter (1995) further demonstrates that underperformance exists in seasoned equity offering as well, and suggests that investment banks take companies public when they can get the highest price possible for their shares. Lerner (1994) studies the ability of venture capitalists to time IPOs by going public when equity prices are high and using private financing when prices are lower. The above studies indicate that issuers can time idiosyncratic returns. Baker and Wurgler (2000) find that issuing activity is positively correlated with indicators of timing ability: insider trading profits, closed-end fund discounts, and consumer sentiment. They suggest that equity financing can predict one-year-ahead market returns and that issuers have the ability to time market returns. Regardless of idiosyncratic returns or market returns, these studies propose that firms or underwriters have timing ability.

However, recent studies challenge this explanation by suggesting "pseudo market timing." Schultz (2003) first raises the term "pseudo-timing" in explaining IPO clustering. The idea is that IPOs cluster around equity peaks, because firms go public when prices are high, without necessarily having timing ability. He argues that long-run under-performance after an IPO is evidence for issuers' timing ability. However, if researchers use the event-time approach to calculate returns, as has been done in these studies, obtaining long-run under-performance after the IPO is not surprising. Therefore, one cannot argue whether firms have timing ability based on long-term under performance. Butler, Grullon, and Weston (2005) supports Schultz (2003) in extending the pseudo-timing argument to the aggregate level to account for Baker and Wurgler's (2000) result without the event-time calculation. The paper provides

evidence to reject the timing ability argument and argues that pseudo-timing cannot be rejected. Ball, Chiu and Smith (2009) provides results consistent with those of Butler, Grullon, and Weston (2005), in support of the pseudo-timing argument.

Since no explanation of timing ability has reached consensus, we propose another explanation, wherein moral hazard is at the center of the cyclical behavior in the frequency of IPOs. Essentially, firms would want to initiate an IPO when the moral hazard related to insiders hurting outside investors is low. It has been shown by Bernanke and Gertler (1989), in a formal model, that moral hazard is the source of economic cyclical dynamics. Basically, moral hazard is highest(lowest) when economic activity is lowest(highest). The moral hazard in question is a costly state verification that is higher(lower) when borrower net worth is lower(higher). Borrower net worth will be higher(lower) when economic activity is higher(lower). Hence, moral hazard is a monotonic decreasing function of economic activity. Since firms prefer to go public when moral hazard is low, we expect more IPOs when the economic cycle is around a peak. Since economic cycles and equity cycles are highly correlated, this would explain why we see a larger number of IPOs around equity peaks.

This paper finds that moral hazard proxied by financial accounting information and bankruptcy information can explain IPO clustering at equity peaks. When the current ratio, cash ratio, or quick ratio increases, the number of IPOs increases as well. When the number of business bankruptcy filings increases, the number of IPOs decreases. After controlling the free cash flow problem, it is found that the results continue to hold.

The rest of the paper is organized as follows. In section I we present the model, derive the optimal financial contracts, and express agency cost and the number of IPOs as a function of the business cycle. Section II presents the framework for

empirical testing of the model. Section III presents the data and summary statistics. The results are in section IV. Finally, section V concludes.

1.2 The Model

The model is derived from Bernanke and Gertler (1989), which explains the business cycle from the perspective of the borrowers' net worth. This paper borrows their model and applies one of their conclusions to explain the IPO cycle phenomenon. Thus, we only present the part that is relevant to our analysis and derive the part that is needed to support the hypothesis.

A) The Economy

Consider an economy with overlapping generations of two-period lived agents belonging to two classes (see Diamond, 1965). It will be convenient to assume that there is a countable infinity of agents in each generation[1]. An exogenous fraction η of individuals in each generation are called "entrepreneurs." The rest are "investors." Entrepreneurs and investors differ in endowments and preferences (both are risk-neutral). Only entrepreneurs have access to new projects. Entrepreneurs are indexed by an efficiency parameter ω. There are two goods, a capital good and an output good. Denote risk-free rate by r. A project belonging to an entrepreneur of type ω takes as input exactly x(ω) units of the output good. The amount of capital produced by a given project is a discrete random variable with two possible outcomes κ_1 *and* κ_2 *with* $\kappa_2 > \kappa_1$. The probability of outcome κ_1 *is* π_1 *and that of* κ_2 *is* π_2. Asymmetric information is introduced in the model by assuming that the realized outcome of any particular investment project is costlessly

[1] An implication of this assumption is that we will generally have to deal in per capita, rather than aggregate, quantities.

observable only by the entrepreneur who operates that project. Other agents in the economy can learn the realized returns of a given project only by employing an auditing technology. This technology absorbs γ units of the capital good when operated, but reveals the outcome of the audited project to everyone in the economy and without error. Random auditing is allowed. Let p denote the probability of an audit. Entrepreneurs can save the part of their wealth that is not consumed. Denote average entrepreneurial savings by S_e. Finally, let the expected relative price of capital be $\hat{q}$.

The output produced by the production function is:

$$y_t = \theta_t f(k_t) \tag{1}$$

where: y_t is amount produced

θ_t is a random aggregate productivity shock

k_t is the amount of capital per head

With respect to capital production, the next period capital stock per head is:

$$k_{t+1} = (\kappa - h_t \gamma) i_t \tag{2}$$

where: i_t is the number of investments projects and

h_t is the fraction of projects that are audited.

We also assume

$$\theta f'(0)\kappa > rx(0) + \gamma, \tag{3}$$

$$\theta f'(\kappa\eta)\kappa < rx(1). \tag{4}$$

Equations (3) and (4) will be sufficient to guarantee that it is always profitable for some but not all entrepreneurs to operate the project.

Individual preferences are defined over lifetime consumption (there is no disutility of labor). We assume that entrepreneurs care only about expected consumption when old. That is, they are risk-neutral and do not consume when young. Investors consume in both periods; investors born in t have identical utility functions of the form

$$U(z^y_t) + \beta E_t(z^o_{t+1}), \tag{5}$$

Where z^y_t and z^o_{t+1} are the consumption of the representative period-t investor when young and old, respectively, U(.) is of the usual concave form, and β is a discount factor[2].

We will focus on the behavior of this model economy in a competitive market environment. In such an environment, our agents' labor supply and consumption/saving behavior are easy to describe. Labor is supplied inelastically, so the average entrepreneurial saving (when young) is:

$$S_t^e = w_t L^e \tag{6}$$

where w_t is the wage per unit of labor

L^e is the labor endowment of the entrepreneur

The average savings by Investors is:

$$S_t = w_t L - z_y^* (r) \tag{7}$$

where z_y^* (r) is optimal consumption by Investors, and L is the endowment of the investor[3].

Equations (6) and (7) establish a direct link between wages and savings. The idea is that when the economy is doing well, there will be more savings (and more wealth).

Entrepreneurs are characterized by the NPV (Net Present Value) of their project. Denote the NPV of the new project (per share) b_f. The subscript f is an index that designates a firm with a specific level of NPV. f is distributed over continuous finite support. Denote the lower bound on f by $\underline{f}$ and the upper bound on f by $\overline{f}$. We define the two variables above "per share." As will be shown below, the NPV of

[2] The assumptions that entrepreneurs and investors have different utility functions and, in particular, that entrepreneurs do not consume when young are inessential.

[3] As a normalization, we assume that the economy-wide per capita labor endowment, η Le + (1 - η)L, is equal to one. This allows us to avoid the distinction between per capita and per labor-input variables.

projects depends on the entrepreneur's efficiency ω. Each entrepreneur has to make a binary decision. The first choice is that he can implement the project. In this case he must realize an IPO (go public) to get the additional funds to finance the project. The second choice is that he does not do anything (no implementation of the project and no IPO). Implementing the project implies initiating the IPO and vice-versa. Subscribers to the firm's shares (in the case in which an IPO is initiated) are assumed to be in perfect competition (they will have zero profits from buying the IPO shares). In this case, we have a rationality constraint that will bind, and make the investors pay exactly the value of the shares they are subscribing to (ex-ante).

We focus on the asymmetric information concerning moral hazard related to the net worth of the firm. This moral hazard will materialize in an agency cost. A standard result is that investors are rational and will make the firm bear this cost. Agency costs will be shown to depend on the economic cycle.

B) The Optimal Financial Contract

The optimal contract is found by application of the revelation principle. Formally, the entrepreneur's problem is to maximize his expected next-period consumption, subject to the constraints that

(i) the investor(s) receive an expected rate of return of no less than r.

(ii) the entrepreneur has no incentive to lie about realized project outcomes.

(iii) the state contingent consumptions and auditing probabilities are feasible.

General random auditing strategies are allowed, and may be significantly more efficient than nonrandom strategies (see Townsend, 1979). An implication of allowing random auditing is that the optimal contract will not be in the form of a debt contract, as it is when auditing is nonrandom (see Mookherjee and Ping, 1987; Townsend, 1988). Importantly, our macro results are essentially the same whether stochastic

auditing is permitted or not.

It can be shown that, under the optimal contract no auditing occurs when the best possible state (here, state 2) is announced[4]. Thus, investors audit only when the entrepreneur declares the bad state (state 1). Let p be the probability of an audit in the bad state, let c_i be the entrepreneur's consumption payoff when he announces state i (i = 1, 2) and is not audited, and let c^a be his consumption payoff when he announces the bad state and is audited[5]. Then, the optimal contract is found by choosing the vector $\{p, c_1, c_2, c^a\}$ to solve

$$\max \pi_1(pc^a + (1-p)c_1) + \pi_2 c_2 \tag{8}$$

subject to

$$\pi_1[\hat{q}\kappa_1 - p(c^a + \hat{q}\gamma) - (1-p)c_1] + \pi_2[\hat{q}\kappa_2 - c_2] \geq r(x - S^e), \tag{9}$$

$$c_2 \geq (1-p)(\hat{q}(\kappa_2 - \kappa_1) + c_1), \tag{10}$$

$$c_1 \geq 0, \tag{11}$$

$$c^a \geq 0, \tag{12}$$

$$0 \leq p \leq 1, \tag{13}$$

where $\hat{q}$ is the expected (next-period) relative price of capital.

The optimal contract is as follows[6]. There are two regimes: In the first regime, the entrepreneur's net worth is sufficiently large that he is able to pay the investors their required return even in the bad state. That is

$$\hat{q}\kappa_1 \geq r(x(\omega) - S^e). \tag{14}$$

There is no agency problem in this case, since the entrepreneur can always pay off. Optimal auditing probabilities are always zero, and the investor's payoff is independent of the project's outcome. If entrepreneurial savings S^e are insufficient, so that (14) fails, there will be positive agency costs.

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[4] See the appendix in Bernanke and Gertler (1989) for a formal derivation of this and its results.

[5] More precisely, c^a is the payoff if the entrepreneur is audited and found to be telling the truth. The optimal payoff if the entrepreneur is audited and found to be lying is easily shown to be zero.

[6] See Bernanke and Gertler (1989) for a formal proof.

C) Agency Costs as a Function of the Business Cycle

We want to derive agency costs endogenously as a function of the economic cycle. We therefore adopted a neoclassical model of the business cycle in which the condition of entrepreneurs' balance sheets is a source of output dynamics. The mechanism is that higher entrepreneur net worth reduces the agency costs of financing new projects. Business upturns improve net worth, lower agency costs, and increase investment, and this amplifies the upturn (the reverse is true for downturns). What is most interesting to us is the level of agency costs as implied by the state of the economy. We next show that agency costs are high(low) when business activity is low(high).

The optimal financial contract under the general equilibrium framework described above is shown (in section II B) to be as follows. Investors will commit to auditing with probability p, whenever the entrepreneur reports the bad outcome κ_1. p is shown to be such that:

$$p = \frac{r(x(\omega) - S^e) - \hat{q}\kappa_1}{\pi_2 \hat{q}(\kappa_2 - \kappa_1) - \pi_1 \hat{q}\gamma} \tag{15}$$

The optimal auditing probability p is just sufficient to guarantee that the entrepreneur will report honestly when the good state occurs.

We denote Ψ the agency costs induced by moral hazard (per share). Expected agency cost which we identify with expected auditing costs is then:

$$\Psi = \pi_1 p \hat{q} \gamma , \tag{16}$$

Agency costs are simply the probability of the bad state, times the probability of an audit given the bad state, times the cost of implementing an audit.

Substituting (15) in (16) we get:

$$\Psi = \frac{r(x(\omega) - S^e) - \hat{q}\,\kappa_1}{\frac{\pi_2}{\pi_1 \gamma}(\kappa_2 - \kappa_1) - 1} \tag{17}$$

The above expression says that Ψ will be high(low) when business activity is low(high)[7]. The intuition for this result is as follows. In good times, when profits are high and balance sheets are healthy, it is easier for firms to obtain outside funds. The converse is true in bad times.

D) The Number of IPOs and the Business Cycle

The firm will decide to initiate the IPO and implement the project if the NPV is positive (taking into account agency costs).

More formally, the firm will initiate the IPO if

$$b_f > 0. \tag{18}$$

where

$$b_f = g(\omega, \Psi), \tag{19}$$

and

$$\frac{\partial b_f}{\partial \omega} > 0; \quad \frac{\partial b_f}{\partial \Psi} < 0. \tag{20}$$

The firm will not initiate the IPO otherwise, and will forgo the project. If a project is not implemented, it is lost for the firm. The NPV of the project is an increasing function of the entrepreneur's efficiency □.

As shown above, the decision to initiate an IPO is a function of the NPV of the project, which is a function of agency costs and the entrepreneur's ability. The more projects with positive NPV, the more IPOs. Therefore, the number of IPOs is

[7] For more details, see Bernanke and Gertler (1989).

decreasing in terms of agency costs. Since agency costs are decreasing in business activity, this implies that the number of IPOs is increasing in business activity. And finally, since equity prices are increasing in business activity (with some lead or lag), the number of IPOs will increase in terms of equity prices.

1.3 Empirical Framework

We subject the two explanations (moral hazard and market timing) to empirical testing.

Model: $$IPO = \beta_0 + \beta_1 * MH + \beta_2 * PRICE + \varepsilon \quad (21)$$

where MH is a proxy of moral hazard, and PRICE is a proxy for equity price values.

If the moral hazard theory is correct, then MH should be negative. If the market timing explanation is correct, then PRICE should be positive. Here we do not distinguish market timing from pseudo market timing. The fundamental difference between market timing and pseudo market timing is very subtle. In fact, both argue that firms initiate IPOs when prices are high. The difference is whether firms or underwriters subjectively know in advance that a firm is overvalued. Without discussing whether firms have identified a high price as an overvalued price, we simply use the price as a proxy to reflect a timing opportunity, no matter if it is due to an over-valued price level or simply because it is a high price. The focus of our model is to test the role of moral hazard in the aggregate IPO activities. The above model is based on a set of time-series data representing aggregate IPO activities, aggregate financial health situations and aggregate price levels from 1970 to 2008.

a) The dependent variables (proxy for IPO activity) are defined as follows:
    1. IPO/GDP is the average of the ratio of the equity issued by newly listed firms to the gross domestic product. In other words, it is Initial Public Offerings in dollar amounts as a percentage of GDP.

2. IPO/CPI is the average of the ratio of the equity issued by newly listed firms to the consumer price index.
3. LN_NOIPO is the natural log of the number of initial public offerings per month.

GDP and CPI are used to get a pure cycle of IPO activities without any effect of the aggregate economy. As IPO_GDP and IPO_CPI are based on dollar amounts of equity issued, it is possible that the number of IPO firms is small but each firm issued a large amount of shares. Thus IPO_GDP and IPO_CPI do not allow us to observe if there was a large number of IPOs during the period of time. To account for this, we also use the number of firms initiating IPOs to test the hypothesis. In order to control for outliers, we take the natural log of IPO numbers.

b) Moral hazard independent variables

A firm's accounting solvency ratio represents its ability to pay back debt, and is what lenders care most about. If a firm's ability is very poor, the agency cost of borrowers will be very high and the likelihood of lending will be small. Thus we use accounting solvency ratios to measure moral hazard. We expect that if a solvency ratio is high on average, moral hazard will be less likely and more IPOs will be observed than if the ratio is low. Specifically, we use the following ratios:

current ratio = total current assets / total current liabilities

quick ratio = (total current assets – inventory) / total current liabilities

cash ratio = cash / total current liabilities

These are the most basic and simplest indicators of a firm's ability to pay back its current debt with what is at hand.

The number of business bankruptcy filings is another indicator of the aggregate ability to pay back debt in the economy during a period of time. If the number of filings is high, this indicates that there is a large number of firms that have failed to

pay back the debt and make profit. Therefore, we expect that if there is a high number of filings, the moral hazard is high and we should expect to see low level of IPO activities.

c) Pricing independent variables:

We propose a simple indicator to measure periods when there is a high equity price and those when there is a low equity price. We take the natural log of the S&P 500 index and subtract its one-year moving average. If the difference is very large and positive, that indicates periods of high prices. If the difference is very small, that indicates periods of smooth price movement. If the difference is very negative, that indicates periods of low prices. A high positive difference period indicates opportunities to observe high prices and to initiate an IPO at a high price. A negative difference period indicates a relatively low price and the possibility of postponing IPOs. Thus we use this variable to proxy the timing hypothesis. We expect that if the difference is positive and large, there are more timing possibilities and more IPO activity. In the opposite case, there are fewer timing possibilities and less IPO activity.

d) Control variable: investment opportunity set

We use the investment opportunity set as a control for the above model (21). This control variable proxies the free cash flow problem. The free cash flow problem is that managers tend to waste a company's excess cash that is not invested. This is another type of moral hazard. If there are investment opportunities, managers' free cash flow problem will be less severe. Thus, by using the investment opportunity set variables as a control, we are able to see whether, in periods of time that in aggregate have the same degrees of investment opportunities in the economy (thus the same degrees of free cash flow problems), better borrowers' net worth indicates more IPO activity. Following Adam and Goyal (2007), we use the following four variables to measure the investment opportunity set:

MBA = the ratio of the market value of assets to the book value of assets

MBE = the ratio of the market value of equity to the book value of equity

EP = earnings to price

CEPPE = the ratio of firms' capital expenditures to net plant property and equipment

1.4 Data and Summary Statistics

The data used was derived from public company averages since 1970 for key variables to be discussed later. The data was obtained from multiple sources. The time period used was from 1970, inclusive, to 2008, inclusive. Furthermore, the data was examined on monthly bases.

Three variables are used to measure IPO activities in the market: IPO_GDP, IPO_CPI and IPON. IPO_GDP includes two different data: IPO and GDP. IPO here is obtained from the Board of Governors of the Federal Reserve System. It is defined as the total dollar amount of stocks issued by new U.S. Corporate in a period and the unit is in millions. This data is released monthly. GDP is obtained from Bureau of Economic Analysis and is announced by quarter. GDP here is in current dollars and seasonally adjusted. As the GDP announced each quarter is annualized, the data is divided by 12 and converted into per month. GDP here is converted to millions, as well, to be consistent with IPO. Thus IPO_GDP is calculated based on the obtained data on IPO and GDP. IPO_GDP represents IPO activity in the market, controlling for effects of general economic conditions. IPO_CPI is another variable to measure overall IPO activity in the market. IPO in the IPO_CPI is the same as the IPO in IPO_GDP. CPI here is the US all urban consumer price index reported each month. CPI is obtained from the Bureau of Labor Statistics. It also functions as a control for the effects of inflation. As CPI is released monthly, IPO_CPI is calculated using CPI

directly, without transformation. IPON is a different way to measure IPO activity. It represents the number of companies that issue IPOs in a period. Instead of considering the dollar value of an IPO, this variable excludes cases in which the IPO is highly valued by one or a few companies. This variable measures IPO activity in the market from another perspective. IPON is obtained from the Securities Data Company, which provides information concerning firms' major financial activities, such as equity issues and M&A. IPON is available monthly from 1970 to 2008.

As described earlier, delnspx measures the timing ability of institutional investors. To calculate this variable, S&P 500 from 1969 to 2008 is obtained from Datastream. Datastream provides stock trading data as well as data on other financial instruments with coverage of the global market. The data frequency of this variable is by month and it is calculated based on the monthly S&P500 index.

In this paper, the accounting variables CURRENT, QUICK and CASH are one group to measure moral hazard. They are all obtained from COMPUSTAT, which provides accounting information for the listed firms. As financial statements are released quarterly, the above accounting items all represent quarterly data. These variables are all ratios; thus, months within the same quarters are assigned the same value, and this allows testing on monthly bases. The following shows how the ratios are calculated using COMPUSTAT notation:

CURRENT=current asset/current liabilities

QUICK=(current asset-inventory)/current liabilities

CASH=cash/current liabilities

Bankruptcy information is another approach to measuring moral hazards. Here four variables are used: BANKSIM/CPI, BANKINT/CPI, BANKSIM/GDP and BANKIN/GDP. GDP and CPI are the same as those used for the IPO variables. The bankruptcy data here uses the number of US business bankruptcy filings and is

measured in units. The data comes from two sources. Data from 1970 to 2003/03 is provided by Andrew P. Meyer from the Federal Reserve Bank of St. Louis. In particular, data from 1970 to 1979 is on a yearly basis; data from 1980 to 1990 is on a quarterly basis; and data from 1991 to 2003/03 is on a monthly basis. The data from 2003/04 to 2008/12 is obtained from the American Bankruptcy Institute website. The data from this source is on a quarterly basis only. These two sources jointly present data from 1970 to 2008 at different frequencies. Conversion is conducted for bankruptcy data that is not on a monthly basis. Two approaches are adopted. One is to calculate the simple average and the other is to do the linear interpolation in order to assign each month a value. After a value is assigned to each month, the data is scaled by GDP and CPI separately to control for the general economic effect. As a result, four variables, BANKSIM/CPI, BANKINT/CPI, BANKSIM/GDP and BANKIN/GDP, are obtained.

We follow Adam and Goyal (2007) to measure the investment opportunity variable. The data is from Compustat and released quarterly. Based on the same logic as that for the accounting variables above, these proxies are ratios; thus, the ratio for one quarter can be assumed to be the same as ratios for months within the quarter.

Table 1.1 presents the descriptive statistics of the above mentioned variables. The total number of observations is 468. The time period is from 1970 to 2008. The data frequency for the analysis is on a monthly basis. Regarding the IPO variables, there is one missing data for the dollar amount of stocks newly issued; thus, the IPO_GDP and IPO_CPI only have 467 observations. The number of quarterly observations for the accounting information should be 156. Due to the missing values, the number of observations varies for different accounting variables and for the investment opportunity set variables.

1.5 Empirical Results

Consistent with the earlier studies, the numbers of IPOs per month exhibits a cyclical pattern. We graph the IPO volume from 1970 to the most recent year for which we have data, 2008 (Figure 1.1). In order to exclude the effect of the aggregate economy, we also graph monthly dollar IPO activity adjusted by GDP. It is shown in Figure 1.2 that aggregate IPO activity without the effect of the overall economy also exhibits a cyclical pattern. Moreover, Figure 1.2 compares the pattern of IPOs and economic growth over the years. It can be seen that when the economy has high growth, total equity issued, adjusted by GDP, also tends to be high. As peaks in the stock market are associated with high economic growth periods, the above observations jointly lead to the question this paper is trying to answer: why IPOs cluster at equity peaks.

This paper suggests that moral hazard can explain why IPOs cluster at equity peaks. When the economy is doing well, there are more good opportunities for firms to make profits and, thus firms' net worth will be better. In turn, agency costs will be lower and more IPOs will be observed during a strong economy. To first demonstrate this proposal, the correlation between GDP and the various accounting variables is tested to see whether the strong economy indicates high net worth of firms in the economy. Table 1.2 gives the Pearson correlation coefficients between GDP and Current, Quick and Cash. It shows that each of these three accounting variables is positively correlated with GDP and the correlations for the Quick and Cash are above 0.70. The correlation between GDP and Current is 0.5998, which is also positive and significant. Therefore, the correlation test supports the idea that borrowers' net worth in aggregate is positively linked to the business cycle.

Table 1.3 gives the key results of this paper, showing that the borrowers' net worth measured by Current can explain IPO activity. The coefficient of Current for

IPO_GDP is 0.00244, and it is statistically significant at the 1% level. The adjusted R^2 is 0.2108 for the regression of Current on IPO_GDP. The coefficient of Delnspx is 0.01628, and it is statistically significant, which supports the timing hypothesis. This means that both moral hazard and market timing play a role in explaining why IPOs cluster at equity peaks. When the regression is based on IPO_CPI, the result is the same. Since the IPO_GDP and IPO_CPI use total dollar equity issued as dependent variables, it means that the higher the borrower's net worth, the larger the dollar amount of newly issued equity, and not necessarily the higher number of IPO firms. Thus we use LNIPON to test again. The result is consistent with the regression on IPO_GDP and IPO_CPI and the coefficient on the Current is positive and statistically significant. Adjusted R^2 is highest for the regression with LNIPON. Current is one of three accounting variables that measure moral hazard in this paper. Table 1.3 also gives the result for the other two accounting measures: Cash and Quick. Both Cash and Quick can explain IPO activities. The coefficients on Cash and on Quick are positive and statistically significant at the 1% level, regardless of which dependent variable is used. Delnspx is robustly significant and positive across all regressions. Adjusted R^2 is highest for the regression with LNIPON among all the dependent variables.

Table 1.4 provides results from the bankruptcy analysis. The more business bankruptcy filings, the worse borrowers' net worth in aggregate is in the economy. Therefore it is expected that business bankruptcy is negatively related to IPO activity. Table 1.4 consists of two parts. Part I regresses the bankruptcy variable based on a simple average of various dependent variables. As bankruptcy data is adjusted by GDP and CPI, respectively, the regression should correspond to the IPO_GDP and IPO_CPI. The coefficient of Banksimg on IPO_GDP is negative and statistically significant. This indicates that business bankruptcy filings are negatively related to the

number of IPOs, and this is consistent with our expectation. When the economy is bad, the likelihood of more bankruptcy filings is higher than in the good times. A high record of bankruptcy filings indicates poor borrowers' net worth in the economy, and this increases agency costs, which lowers the number of IPOs in the aggregate economy. The timing hypothesis is supported in this regression. Both moral hazard and market timing can explain IPO clustering at equity peaks. The regression of Banksimc on IPO_CPI provides a similar result. The coefficients for both IPO_GDP and IPO_CPI regressions are all highly significant. LNIPON is not adjusted by GDP or CPI, so the effects of Banksimg and Banksimc are tested separately on LNIPON. The coefficient of Banksimg on LNIPON is negative and significant at the 5% level. The coefficient of Banksimc on LNIPON is negative but not statistically significant. This indicates that the moral hazard hypothesis is supported based on the regression of Banksimg on LNIPON, but not on the regression of Banksimc on LNIPON. However, the timing hypothesis is consistently supported by both of these regressions on LNIPON. The second part of Table 1.4 reports the results of the bankruptcy data based on linear interpolation. The result in this part is similar to that in part I. The market timing hypothesis is consistently supported in all of the regressions. The coefficients on the bankruptcy-related variables are all negative and are consistent with our expectations, yet only the coefficient of Bankintc on LNIPON is not statistically significant.

We also test whether past financial health of firms in the economy can have predictive power on aggregate IPO activity. Table 1.5 presents the effect of the ability to pay back debt in the past on IPO_GDP. We test the effect of Current ratio in the previous month, two months ago, three months ago, and half a year ago on IPO_GDP. It is found that the Current variable is not only positively related to the IPO_GDP in the current month but also all of the Current variables for one month ago, two months

ago, three months ago, and half a year ago are positively correlated with IPO_GDP. This means that if the average ability to pay back debt of firms in the economy is strong, IPO activities will more likely be observed in one month, two months, three months, and even in half a year. All of these results are statistically significant at the 1% level. The moral hazard hypothesis is robust in several time ranges. Additionally, for each lagged analysis, the market timing hypothesis is supported. However, adjusted R^2, in general, decreases as the lagged period lengthens.

Table 1.6 shows how lagged bankruptcy variables affect the IPO_GDP. The table uses Banksimg as the independent variable and tests whether past bankruptcy records can predict IPO activity in the future. We examine bankruptcy filings one month ago, two months ago, three months ago, and half a year ago. The results show that each of these is negatively related to the IPO_GDP, and each is statistically significant except for the banksimg, which lagged by three months. Moreover, Delnspx is statistically significant at the 1% level and positively correlated with IPO_GDP. On average adjusted R^2 decreases as the number of lags increases. This indicates that past bankruptcy records can explain active IPO activity in the future, but to a lesser extent than more recent bankruptcy records.

Table 1.5 and Table 1. 6 present the effect of Current and Banksimg on IPO_GDP. We also replicate the analysis of Current and Banksimg for IPO_CPI and LNIPON as dependent variables. Additionally, we perform the same lag analysis for Cash, Quick, Banksimc, Bankintg, and Bankintc. All of the analysis shows similar results, indicating that past financial health can predict future IPO activities.

From Table 1.3 to Table 1.6, the analysis uses the moral hazard proxies and the timing proxy. In order to control for the effect of the free cash flow problem, we redo the analysis from Table 1.3 to Table 1. 6 and present results from Table 1.7 to Table 1.10. We only present results with MBA as a control. On the one hand, the is because

results with other investment opportunity set variables is similar to that with MBA. On the other hand, Adam and Goyal (2007) finds that MBA contains the highest amount of information related to investment opportunities. The results with MBA show that controlling for the free cash flow problem, better borrowers' net worth and better financial health of firms is associated with more IPO activity. This is not only the case for the effect of the current financial condition on current IPO activity, but also is reflected in the effect of the current financial condition on IPO activity in one month, two months, three months, and half a year. In other words, after controlling for the free cash flow problem, our conclusion on the effect of moral hazard remains the same.

1.6 Conclusion

There is extensive empirical evidence that IPOs tend to cluster around equity price peaks. An explanation in the literature is that underwriters have timing ability, or there is a pseudo-timing ability such that underwriters take firms to IPO when observing high equity prices. The model presented in this paper proposes an alternative explanation. In this explanation, underwriters do not have timing ability. IPOs cluster around equity price peaks because moral hazard is the lowest around those peaks. More firms will tend to initiate share offerings when moral hazard is lowest because more firms will be able to avoid agency costs. Bernanke and Gertler (1989) propose an asymmetric information model of the business cycle in which the condition of borrowers' balance sheets is a source of output dynamics. The mechanism is that higher borrower net worth reduces agency costs of financing real capital investments. Business upturns improve net worth and lower agency costs (the reverse is true for downturns). Then, firms will tend to go public around equity peaks because this is a point in the business cycle where firms are most credit worthy and moral hazard is lowest. This paper finds that moral hazard proxied by financial accounting

information and bankruptcy information supports its hypothesis. When the current ratio, cash ratio or quick ratio increase, the number of IPOs increases as well. When the number of business bankruptcy filings increases, the number of IPOs decreases. After controlling for the free cash flow problem, it is found that these results continue to hold.

CHAPTER 2

CAN THE MARKET IDENTIFY THE INFORMATION CONTENT IN THE INVESTMENT NET INCOME?

2.1 Introduction

China, as one of the largest emerging markets, is gaining more and more attention from practitioners and scholars around the world. China's economy, its stock market and its investors produce a lot of interesting phenomena for economists as the country is developing rapidly. This paper studies one phenomenon that appeared in the 2007 stock market: listed firms took the advantage of the stock market and actively engaged in buying and selling stocks of other listed companies.

China's stock market shows an interesting pattern in 2007, experiencing an abnormal increase in overall market index. The Shanghai Composite Index started at 2675.47 on Dec 29th 2006 and ended at 5261.56 on Dec 31st 2007, an increase of almost 100% over the year. Before 2007, the average index was 1170. After 2007, it decreased from 5261.56 to 1958.53 [Figure 2.1]. Moreover, most of the listed companies in the A share market experienced an increase at the same time. 98.9% of the listed firms in the A share market had a price increase over 2007.

These phenomena created a special market environment in which listed firms can realize large capital gains by buying and selling shares of other listed companies and expand their bottom-line earnings. In fact this is what many companies did in 2007. Take the YOUNGOR GROUP, a listed company in the Shanghai Stock Exchange, for an example. It had an investment net income of RMB 34 million in 2006, but the number for 2007 is 81 times that for 2006, reaching RMB 2.754 billion. This income is generated by selling its holdings in Citic Securities, another listed company in the Shanghai Stock Exchange during 2007. This investment net income

fell to 1.3 billion in the third quarter of 2008. The investment net income is equivalent to 3% of its total earnings in 2006, 75% in 2007 and 48% in 2008.

It is interesting to study this phenomenon for the following reasons. Firstly, the abnormal increase and decrease in the overall stock market is unusual, historically. The abnormal capital gains or losses resulting from this market trend are unusual as well. Thus, it can be expected that such abnormal gains are very likely to be nonrecurring and firms that rely on such gains for their earnings will perform poorly once these gains disappear. It would be interesting to check whether this kind of firm actually has poor earnings performance in the next period. Secondly, it is interesting to see whether this nonrecurring gain is reflected in the stock price and whether people correctly understand the nature of the abnormal gains.

The most relevant literature in the U.S. is the research work on special items. According to COMPUSTAT, special items represent unusual or nonrecurring items above taxes presented by the company, and this category includes sixteen types of different activities. One of the sixteen types in particular is the nonrecurring profit of securities. In the literature there are three main lines of research focusing on special items. One involves market reaction to announcements of special items. (Elliott and Shaw, 1988).

All of these lines of research share a common problem and studying the phenomenon in China tackles that problem while contributing to the literature of the special item. The special item studied in the literature is either an aggregate concept or the write-off of assets due to data limitations. The data concerning the special item in COMPUSTAT aggregates all sixteen types of specific special items. Therefore, it poses a difficulty in terms of identifying data on individual types of special item and implies that each individual special item shares the same features as the average special item. The write-off of assets is one type of special item described in

COMPUSTAT and has been studied quite extensively, yet the literature does not go much beyond this type and studies concerning other types of special item continue to be absent. Studying the abnormal capital gains in China's stock market in 2007 in fact focuses on Investment Net Income, an accounting item above net earnings in the income statement. This item consists primarily of capital gains from buying and selling securities, dividends, and interest, as well as profit from other firms invested. Thus, this item allows researchers to investigate companies' approximate realized profits from securities in this special market condition.

Moreover, in the literature, whether investors understand the nonrecurring nature of the special item and whether they are able to understand the information content contained in the recurring and nonrecurring items are unclear. Studying this phenomenon can not only contribute to the literature of the emerging market but also to the understanding of this question. Burgstabhler, Jiambalvo and Schevlin (2002) suggests that people overpriced the special item, and that the stock price does not fully reflect the information contained in the special item. Doyle, Lundholm and Soliman (2003) implies that the stock price fully reflects the information in the special item as if people correctly understand the special item. Lansman, Miller and Yeh (2006) finds that people underpriced the special item. Each finding above suggests a different answer to the market efficiency question. Thus, more empirical evidence is needed.

The questions this paper attempts to answer are as follows: (1) What is the trend of the earnings components for firms that actively participated in the stock investment in 2007 and those that did not? (2) Do firms exhibit earnings reversals because of nonrecurring investment net income? (3) Is investment net income less persistent into future earnings than main operating income? (4) Does the stock price fully reflect the information contained in an item when the special market condition is present? (5) Do firms that rely on the investment net income have lower abnormal returns than firms

that rely on the main operating income?

This paper finds that firms that actively participated in stock investment in 2007 indeed relied on investment net income while those that did not participate relied on main operating income. In particular, in 2008 when the stock market was in decline, those that had actively participated in the stock investment in 2007 tended to rely on main operating income because investment net income declined significantly. When earnings components are examined over time, it is found that firms that participated in stock investment in 2007 had earnings reversals in 2008 because of the decline in investment net income. The above earnings reversal is also reflected in the earnings persistence analysis. It is found that investment net income is less persistent than main operating income into future earnings. The stock price also acts as if the investors correctly and fully understand the earnings persistence of these two different items together. The return analysis shows that both kinds of firm on average had positive abnormal returns in 2007 and 2008. The abnormal returns of the firms that did not participate in the stock market in 2007 are higher than those of firms that participated, although statistical significance is not obtained.

This paper contributes both to the literature on the special item and that on emerging markets. It provides empirical evidence for a new type of special item and confirms the literature's findings on the aggregate special item. It demonstrates the nonrecurring nature of a new type of activity defined by the special item. It provides new evidence for the market efficiency question and approaches a new type of special item. The findings of this paper support the result of Doyle, Lundholm and Soliman (2003) regarding market efficiency. This paper will be useful to analysts and investors in bringing attention to this type of investment activity of firms and the need to be careful when reading financial statements and making investment decisions. The paper will be useful to policy-makers as well in calling for closer scrutiny to firms that

frequently engage in buying and selling stocks.

The remainder of the paper is as follows: Section I reviews related literature. Section II develops the hypothesis. Section III describes the data. Section IV presents results. Section V concludes and points toward possible future research.

2.2 Literature review

Prior studies on the special item focus primarily on the average special item. Lipe (1986) shows that earnings components explain more of the variation in returns than earnings itself. The earnings components provide additional information for future returns. This indicates that it is important to decompose earnings into components in a return study, and that the special item is likely to contribute to the variation of the stock return. Fairfield, Sweeney and Yohn (1996) finds that special items provide information and have predictive power for future earnings. This indicates that the separation of the special item from the other operating items is meaningful in studying future earnings. This lays the foundation for this current paper to study the relation between a particular type of special item and future earnings and the future returns. Burgstahler, Jiambalvo and Shevlin (2002) examines the extent to which information in the special item is contained in the stock price in the fourth quarter subsequent to an earnings announcement. The results show that the positive special item is transitory while the negative special item is not. Yet the special item in this finding is still the average special item and, thus, it does not indicate that the individual special item shares the same characteristics.

Regarding the persistence of earnings components, Sloan (1996) provides important evidence of earnings components and guides the persistence study of this paper. Sloan (1996) extends the framework used by Freenman et al. (1982) to test the relation between current earnings components and future earnings. It finds that the

accrual component is less persistent than the cash flow component into future earnings. This paper adopts Sloan's (1996) approach but decomposes earnings in a different way.

The prior literature focuses more on one type of individual special item: the write-offs of assets. Elliott and Shaw (1988) studies 240 firms that reported large write-offs from 1982 to 1985. They find that these firms had declining earnings to assets and earnings to market value before announcements and had negative returns on average when the announcements were made. These findings indicate that the performance of those firms that reported large write-offs was not promising, and that reporting of write-offs can hide unpleasant accounting reports. Elliot and Hanna (1996) uses a longer period to study the characteristics of firms with multiple write-offs over the years. They find firms that reported write-offs were more likely to report them in the future, and that the earnings response coefficient on these items tended to decrease as the frequency of write-off reports increased. This indicates the transitory nature of this item, particularly when it is reported frequently. Francis, Hanna and Vincent (1996) examines what factors are related to decisions to report write-offs and decisions of how much to report. They find that the historical security return, the book-to-market ratio and the return-on-asset ratio, whether there has been a recent change in management and whether the firm has reported write-offs in the past, can explain the decision to report write-offs. Seeing whether the transitory nature of the nonrecurring write-off item and the poor financial performance of these firms also exist in firms that have other types of special item is the goal of this paper.

One question this paper tries to address is whether stock prices fully reflect the information content in investment net income. In the literature there has already been a fair amount of work on testing the information content in stock prices. One famous paper, Bernard and Thomas (1990), uses quarterly data to show that stock prices do

not fully reflect the implications of current earnings for future earnings. A second classic paper, Sloan (1996), extends the findings of the above study by looking at earnings components. Sloan investigates the accrual and cash flow components and concludes that stock price does not fully reflect the information contained in these two components, such that people seem to underestimate the persistence of the cash flow component into the future and overestimate the persistent level of the accrual component. Burgstahler, Jiambalvo and Shevlin (2002), using the same method but from another perspective of decomposing earnings studies the information contained in the special item and concludes that the stock price does not fully reflect the information in the special item. Doyle, Lundholm and Soliman (2004), on the other hand, finds that there is no statistical relation between the security return and the special item using a one-equation test. This poses an opposite conclusion and demands further investigation into the special item. The special item defined in Doyle, Lundholm and Soliman (2003) is also an average concept. Whether this conclusion applies to an individual type of special item requires more work and more detailed data. Lansman, Miller and Yeh (2006) suggests a third conclusion following Ohlson (1999)'s model. In contrast to the two findings above, the stock market underpriced the special item and overpriced the main operating income. The special item defined here is also an average concept. Which conclusion applies to the individual special item is one of the questions this paper explores.

There is one study on investment net income in China's stock market. Chen and Wang (2004) investigates the value relevance of operating income and the below-the-line item, including investment net income, from 1997 to 2000. They find that investment net income was priced higher than main operating income by the stock market although investment net income was less persistent into future earnings than main operating income between 1997 and 2000. In contrast to Chen and Wang (2004),

the intention of this paper goes beyond studying value-relevance. This paper tries to study the phenomenon that listed firms take advantage of a booming stock market in order to exaggerate their earnings performance and suffer from the declining stock market in the following year when the market is down. Unlike Chen and Wang (2004), which studies all firms, this paper compares those that invested in the stock market in 2007 to those that did not.

There is also research on stock investment activities in 2007. Yu and Wang (2008) investigates the question of what drives the decision to cross-hold listed companies. They find that liquidity and ability to pay back debt are negatively related to cross-shareholding decisions. Their paper focuses on listed firms that mutually invest in each other's stocks and the motivation behind such cross-shareholding. This paper, however, addresses a broader group of firms. As long as a listed firm invests in another listed firm, it is the object of this study, and firms do not have to have mutual investment. This paper also explores a different question: whether this group of firms has earnings reversals because of stock investment and whether the stock market reflects this earnings persistence.

2.3 Hypothesis and method

It is expected that for firms that actively participated in stock market investment, total operating earnings, which include both main operating earnings and investment net income, decreased significantly in 2008, and the cause of this decline is the significant decrease in investment net income. In contrast, firms that did not actively participate in stock market investment did not have an earnings reversal in 2008 or, if they did, it was not because of the decline in investment net income. For simplicity, in the rest of this paper, firms that actively participated in the stock market investment in 2007 are referred to as bad firms, and other firms are referred to as good firms. To

highlight the 2008 earnings decline, it is expected that the bad firms had significant increases in total operating earnings in 2007, and this is because of the significant increase in investment net income in 2007. In contrast, the good firms did not have significant increases in investment net income which led to significant increases in total operating income. Thus the first hypothesis is as follows:

H1 (a): bad firms have a significant increase in investment net income, which leads to a significant increase in total operating income for 2007, while good firms do not have significant increases in investment net income leading to a significant increase in the total operating income for 2007.

H1 (b): bad firms have a significant decrease in investment net income, which leads to a significant decrease in total operating income for 2008, while good firms do not have a significant decline in investment net income contributing to a decrease in total operating income for 2008.

In order to test whether main operating earnings or investment net income or the net earnings increase significantly, the signed test is used in this paper. The signed test is a non-parametric equivalent version of the one sample t-test, when the sample is not distributed normally. Since the sign rank test is more statistically powerful in general than the sign test, which is another non-parametric equivalent test, the sign rank test is adopted here.

It is expected that the bad group's investment net income growth in 2007 should be higher than that of the good group in 2007. This is because the bad group's firms rely quite heavily on gains from investment net income and, in 2007, the stock market was booming, which produced a favorable environment for generating positive investment net income. As a result, those that participated in stock market investment would benefit from this booming market in 2007. It is also expected that the growth of investment net income for the bad group in 2008 is smaller than that for the good

group. This is because the stock market declined in 2008. As a result, opportunities for generating investment net income from the stock market disappeared, and, by contrast, investment net income had a negative influence on total operating earnings in 2008. Those bad firms that relied on investment net income in 2007 would have a greater decline in the investment income in 2008 than the good firms. The second hypothesis is as follows:

H1: Main operating income is the key driving force of a company's growth because it is recurring and persistent. In contrast, investment net income that includes the capital gains from stock market investment, particularly when the stock market experiences booming and declining, is relatively less persistent and nonrecurring. Therefore, main operating income and investment net income have different implication for future earnings.

H2: Main operating income should be more persistent into future earnings than investment net income.

Following Freeman et al. (1982), the above idea can be tested with the equation below :

$$\text{Earnings}_{t+1} = b + \text{bopa}*\text{operating income}_t + \text{bia}*\text{inv income}_t + v_{t+1}$$

"Earnings" is net earnings scaled by the average total asset. "Operating income" is defined as the main operating income scaled by the average total assets. "Inv income" is investment net income excluding profits from invested companies scaled by total assets. The coefficient "bopa" measures the persistence of the main operating income into future earnings. The coefficient "bia" represents the persistence of investment net income into future earnings. Following the above analysis, bopa should be greater than bia.

Mishkin's test is replicated to investigate how the stock market interprets the implications of main operating income and investment net income. Mishkin (1983)

proposes a framework to test the rational expectation hypothesis in macroeconomics. Sloan (1996) introduces this test to accounting studies to address whether stock price fully reflects the smaller persistence of accruals and the larger persistence of cash flow. This paper parallels this approach and asks if stock price fully reflects the smaller persistence of investment net income and the higher persistence of main operating income.

H3: The market is efficient in the sense that stock prices fully reflect earnings implications for future earnings.

Specifically, the following two regressions are estimated jointly:

$$\text{Earnings}_{t+1} = b + \text{bopa}*\text{operating income}_t + \text{bia}*\text{inv income}_t + v_{t+1}$$

$$\text{AdjrR}_{t+1} = a + \beta*(\text{Earnings}_{t+1} - b - \text{bop}*\text{operating income}_t - \text{bi}*\text{inv income}_t) + \varepsilon_{t+1}$$

The first equation shows actual earnings components' contributions to future earnings based on actual earnings information. It describes how current earnings components information can predict future earnings based on actual future earnings information. The second equation observes how stock prices represented by stock returns reflect information in current earnings for future earnings. The logic of the second regression is that investors have an understanding of earnings information. If their understanding of earnings information is exactly the same as the actual earnings implications, then an abnormal return is obtained in the case of an earnings surprise. If the investors do not understand earnings components correctly, an abnormal return will not only be due to the earnings surprise, but also to mispricing. According to the Sloan's (1996) presentation of this model, market efficiency imposes two constraints: bopa = bop and bia = bi. These two constraints require that the stock market understands the information in the earnings components correctly and exactly. In particular, bop is expected to be smaller than bi. If it is not, the stock price seems to act as if investors do not distinguish between these two components.

The two equations are estimated as a system which uses iterative weighted non-linear least squares. The statistic used is the likelihood ratio statistic and is distributed asymptotically $\chi 2(q)$. The statistic is as follows:

2nlog(SSRc/SSRu)

Where

n = the number of observations

q = the number of constrains imposed by the market efficiency

SSRc=the sum of squared residuals from the constrained weighted system

SSRu=the sum of squared residuals from the unconstrained weighted system

In other words, H3 can be written as bopa = bop and bia = bi.

The above test investigates whether a stock price acts as if investors distinguish information in main operating income and investment net income. In other words, it helps to observe whether investors distinguish between firms that rely heavily on investment net income and firms that rely heavily on main operating income. It is expected that, if investors do not distinguish between these two groups of firms, bad firms' stock price will appreciate more than good firms' when the stock market is booming and decline to a greater extent than that of good firms when the stock market is declining. Thus the following is the fifth hypothesis.

H4: If investors do not distinguish between good firms and bad firms, then the bad firms should have higher adjusted returns in 2007 than good firms, and lower adjusted returns in 2008 than good firms.

This hypothesis is tested using the following regression approach.

$Adjr_{t+1} = a + a_1*group_t + a_2*industry + a_3*size_t + v_{t+1}$

This is a cross-sectional approach. "Group" indicates which group the firm belongs to. If its group is 1, that means it is a good firm. a_1 represents whether a good firm has statistically higher adjusted returns than a bad firm with the same size and in

the same industry. The above regression is run year by year to test H5. It is expected that a_1 is smaller than 0 in 2007 and greater than 0 in 2008.

2.4 Data Description

To begin the test, firms listed on the Shanghai Stock Exchange in 2007 are selected to form a sample. The 2007 financial annual report of each listed firm on the Shanghai Stock Exchange has been read in order to find out which company took part in stock investment in 2007 and which did not. Those that reported stock selling and buying in the 2007 annual financial report are selected and labeled as bad firms. Those that did not report such information and whose investment net income did not contain any record of net gains from tradable financial assets or from financial assets that were potentially for sale are selected and labeled as good firms. There are also firms whose information does not present a clear picture of whether they participated in stock market investment in 2007 or not. Firms listed on the Shanghai Stock Exchange are thus divided into three groups: the bad group, the good group and the unclear group.

Next, firms in the good group are matched with those in the bad group. Industry is used as a first criterion to match firms. The industry definition is based on the Chinese Securities Regulatory Commission, and this paper uses the more detailed definition. Then, size is used as a second criterion to match further. Within the list of good firms in the same industry, a bad firm is matched with a good firm whose total market capitalization is within a +/- 20% range of the bad group's size and the good firm with the closest size in range is the matched good firm for this bad firm. As a result, a list of bad firms and a list of corresponding good firms are selected for the study.

Variables needed for the study consist of two groups, one of which is stock price. The abnormal adjusted return here uses the close price at the end of the annual

report announcement date of a company and the close price one year later to calculate the cumulative raw return. In order to control for the market effect, the Shanghai Composite Index is used for adjustment. For each company, the corresponding adjustment uses the index at the announcement date of that company and the index one year after that date. So if companies have different announcement dates, the adjustment is different. The motivation for the period is that each company's returns should be adjusted by the market index in the same period as the company's period for calculating returns. All stock prices used are adjusted for stock split and dividends before calculating the return. As one-year returns are examined here, announcement dates for the annual report of 2006 and 2007 for each firm in the sample are obtained and stock prices for these firms at the corresponding dates in 2006, 2007 and 2008 are obtained next. Then, the corresponding Shanghai Composite Index is obtained as a last step to allow calculation of adjusted returns. As a result, adjusted returns are for the year 2007 and the year 2008 to test whether information for 2006 and in 2007 is correctly reflected in the stock price.

The other group of variables is accounting information. In the income statement for each annual report, the main operating activities' revenue and the main operating activities' costs are listed. The difference between these two gives the profit from main operating activities. The income statement also lists an item called investment net income, which includes capital gains from stock investments and a separate item called profit from other invested companies. This item is also a component of investment net income and the difference between these two makes the data more approximate to the capital gains from stock investment. The income statement also lists an item called operating profit. It is a summation of the profits from main operating activities, investment net income and other components. Additionally, net earnings, which are a summation of operating profits and profits from non-operating

activities, are also listed in the income statement. To compare firms that actively participated in stock investment and those that did not, each accounting variable used is scaled by the total assets of the current year. To be more specific, the following shows how this paper defines the variables used for its analysis:

Op per asset=(operating activities' revenue-operating activities cost)/total assets

Inv per asset = (investment net income- profit from invested firms)/total assets

Opinv per asset = operating profit/ total assets

Np per asset = net profit/ total asset

The above variables are used to examine the earnings components of each firm and the trend of the earnings components since 2006. As this analysis intends to compare two groups of firms, the above variable is obtained for each firm in each year and then within each group, and each variable is averaged to get an average observation for a group in a year.

In order to test whether there is an earnings reversal, the following variables are used: growth rate of main operating profit, growth rate of investment net income excluding profit from other companies, and growth rate of operating income. If the growth rate of the accounting variable is positive in one year and negative in the following year, the reversal argument is proven.

Following the literature to execute Mishkin's test (1983), the accounting variables are standardized in another way. For net earnings, main operating profit and investment net income are scaled by average total assets for the current year and previous year. The test uses annual accounting information for 2006, 2007 and 2008. Below are definitions for the variables used in the Mishkin's test.

Earnings $_t$ = net earnings $_t$ /[0.5*(total asset $_{t-1}$ + total asset $_t$)]

Operating income $_t$ = profit from main operating activities $_t$ /[0.5*(total asset $_{t-1}$ + total asset $_t$]

Inv income $_t$ = investment net income excluding profit from other companies $_t$ /[0.5*(total asset $_{t-1}$ + total asset $_t$]

When testing whether the return for one group is higher than that for the other based on the regression, industry and market capitalization are employed. Industry is defined by China's Securities Regulatory Commission. These definitions have both broad and detailed versions. Here the detailed versions are used. Market capitalization is total market value at the end of the calendar year.

2.5 Empirical Results

The two groups of firms have exhibited different earnings composition patterns since 2006. Figure 2.2 presents each group separately. Figure 2.2-a shows the characteristics of the good firms group. In 2006 and 2007, on average the good group's net earnings relied on main operating activities. While investment net income excluding profit from other companies also contributed to net earnings in these two years, this contribution was not dominant. In 2008, although this group's main operating earnings declined, they still played a more important role in terms of net earnings than investment net income. A possible reason that main operating income decreased is the economic decline in 2008. Additionally, the accounting variables are standardized by current-year total assets. The total assets contain items whose value varies with market value. The stock market in 2008 declined, as well, and this affected total assets. From the graph it can be inferred that main operating earnings declined to a greater extent than total assets. This lead to the decline of main operating per asset and the relative unchanged net earnings per asset in 2008 in Figure 2.2-a. On the other hand, Figure 2.2-b shows a contrasting pattern for the bad firms group. In 2006, main operating income and investment net income played almost equally important roles in net earnings. In 2007, net earnings were mainly from investment net income. In 2008,

both investment net income and the net earnings declined. Following the same logic explained above, investment net income and net earnings declined to a greater extent than total assets, which leads to the graph. In 2008, for the bad firms group, main operating earnings became the driving force for net earnings. This might be due to the sharp decline in investment net income or to total assets changing to a greater extent than main operating earnings for the bad group. In a sentence, Figure 2.2 demonstrates that the good group relies on main operating activities over time while the bad group relied on investment net income in 2007. The message is that those that bought and sold securities in 2007 actively explored the good market condition in 2007.

Figure 2.3 consisting of four graphs which demonstrate the reason for earnings reversals for the group of bad firms. Figure 2.3-a shows that the good group's main operating income per asset increased on average from 2006 to 2007, but decreased in 2008 compared to that for the bad group. Figure 2.3-b shows that the good group's investment net income increased in 2007 and 2008, while the bad group's investment net income increased dramatically in 2007 and decreased dramatically in 2008. Based on Figures 2. 3-c and 3-d, it can be seen that the bad group's operating earnings and net earnings decreased in 2008 while the good group's operating earnings and net earnings remained approximately unchanged. Combining the four figures in Figure 2.3, it can be inferred that the bad group's declining investment net income contributes to the decline of its net earnings. The good group's decline in terms of main operating earnings and the increase in investment net income explain the relatively unchanged net earnings of the good group. These four figures confirm the two-sided nature of buying and selling securities. Doing so helps bad firms expand their net earnings in the bull market and disguises bad firms as good firms; however, once a bear market comes, bad firms' poor performance will be revealed. In contrast, good firms that rely on core operating activities can stand the test of the movement of the stock market.

In order to test whether the above preliminary results are meaningful statistically, Table 2.2 presents formal statistics. Table 2.2-2007 shows results for 2007. Column 4 gives the mean of the growth rate of operating income per asset, the growth rate of investment net income per asset and the growth rate of total operating income per asset. For each accounting variable, the first line is for the bad group and the second line is for the good group. The nonparametric tests of each group of observations for each variable show that the growth rates for investment net income for the bad group is statistically significant; the growth rates for the total operating income for both groups are statistically significant. This indicates that both groups had earnings increases in 2007, and, for the bad group, this was due to the increase in investment net income.

Table 2.2-2008 shows the results for 2008. Similarly, the means are the average growth rate of the accounting variable for one group. Based on the nonparametric test, the growth rates for the main operating income for both groups are not statistically different from zero; the growth rate of the investment net income for the good group is not statistically different from zero, but that for the bad group is statistically smaller than zero. Consistently, the growth rate of the total operating income for the bad group is statistically different from zero and that for the good group is not.

In Figure 2.3 it is shown that the bad group's earnings decline in 2008 was due to the decline in investment net income, and this is shown to be statistically significant. Moreover, based on Table 2.2 of both 2007 and 2008, it can be inferred that earnings from investment net income are nonrecurring. Bad firms manage to boost their earnings with investment net income. As this portion of total earnings disappears in 2008, net earnings decline, as well.

Whether people can understand the nonrecurring nature of investment net income can be inferred from Mishkin's test. Sloan (1996) employs Mishkin's test to

address whether stock prices act as if people can understand the less persistent nature of accrual and the more persistent nature of cash flow. I follow Sloan's approach and use Mishkin's test to investigate the stock price implication of investment net income and infer people's understanding of this item. The idea is that the actual accounting information for current and future periods can tell whether investment net income persists into future earnings while stock price can reflect investors' expectations of persistence. If a stock price acts as if investors' perception is the same as actual persistence, an abnormal return is due to an earnings surprise; if the stock price acts as if investors misunderstand the persistence level, the abnormal return is not only due to an earnings surprise, but also to market misperception.

Table 2.3 presents the actual persistence of earnings components into future earnings. Here, earnings components refer to main operating income and investment net income excluding profits from other firms. Net earnings also consist of other components, yet they are not of interest for this paper. Here I only observe the effect of these two main items. The first column shows the result based on raw data. It indicates that the earnings response coefficient is 0.28 for main operating income and 0.08 for investment net income. The main operating income's persistence is statistically greater than zero while that for investment net income is not. One dollar of this year's main operating income indicates that 28 cents will persist next year. The literature says that the earnings response coefficient should be between 0 and 1. Table 2.3 shows that both coefficients for main operating income and investment net income are smaller than 1. In addition, based on the t-test, it is not proven that the coefficient for main operating income is greater than that for investment net income. In order to highlight the persistence of main operating income, I also present the persistence of net earnings. The second column shows that the coefficient is 0.24, and that it is statistically greater than zero.

Table 2.3 column 3 and column 4 are based on the rank data. In contrast to the raw data, the data for each variable is sorted and grouped into ten deciles. Using rank can control for the outlier effect. Column 3 shows that both main operating income and investment net income have significant persistence into the future. Unlike the result for the raw data, the earnings coefficient for main operating income is 0.5, and that for investment net income is 0.18. Both are much higher than those in column one. The coefficients are proved to be statistically smaller than 1 and, more importantly, main operating income is shown to be more persistent than investment net income. Moreover, adjusted R^2 for column 3 is 0.26, which is much higher than the adjusted R^2 in column 2. Similarly, the regression testing the persistence of net earnings based on the rank data in column 4 is more reliable than that in column 2 with raw data. Adjusted R^2 0.39 is higher than that in column 2. The coefficient is 0.62, indicating that a large portion of current earnings can persist into future earnings, and it is statistically greater than zero and smaller than one. Table 2.3 shows that both operating income and investment net income persist into the future and that investment net income is less persistent than operating income. It proves that the literature's findings for the average special item can extend to profits for securities.

Table 2.4. presents the results of replicating Mishkin's test. This test helps reveal whether a stock price reflects actual earnings persistence. Panel A shows how stock price acts in terms of reflecting the persistence of earnings components. The coefficients of interest are bopa and bia in equation (1) and bop and bi in equation (2). Bopa and bia are actual persistence and bop and bi are estimated persistence. The coefficients show that the stock market expects the persistence of main operating income to be 0.14 and that of the investment net income to be 0.21. Furthermore, although the two equations are estimated jointly, the coefficients obtained from Equation (1) are the same as the equation estimated by itself.

This conclusion is obtained based on Table 2.4 Panel B which presents whether above actual earnings persistence and market expectations of earnings persistence are statistically different from each other. If they are not statically different from each other, that means that the market's expectation is the same as the actual persistence. If the two are statistically different, that indicates that the market either overvalues or undervalues the item's persistence. The results show that the likelihood ratio statistic is not very high, and it can be said that the market correctly understands the two items jointly. The Mishkin's test above provides a way to examine whether the market differentiates between main operating income and investment net income. To interpret this from another perspective, it helps to examine whether the market differentiates the group of good firms from the group of bad firms described in this paper. This can be summarized as the stock price acts as if people understood the implications of main operating income and investment net income at the same time, and that people can distinguish bad firms from good firms based on accounting information.

The following results intend to verify the above conclusion: that stock price correctly anticipates the earnings persistence of each component. It is hypothesized that if people do not understand the nonrecurring nature of investment net income, the group of bad firms will be priced higher than it should be and the adjusted return from the bad firms will be higher than that for the good firms in 2007 when the stock market was booming and lower in 2008 when the stock market declined. However, in a simple graph in Figure 2.4, it is shown that people seem to correctly understand the bad firms and good firms. The adjusted return from the bad firms is lower than that of the good firms for 2007, which cannot show that investors overvalued the bad firms in 2007, and it is consistent with the results in Table 2.4. In 2008, the return for the bad firms is still lower than that for the good firms. To test whether the bad firms gained statistically higher returns in 2007 than the good firms, and lower returns in 2008, a

cross-sectional regression is conducted. Table 2.6 presents the results. Column 1 and column 3 are based on the raw data and the other two columns are based on the rank data to control for the outlier effect. If the group is 1, this indicates that the firm is in the good group. Column 1 shows that the good firm's returns are not statistically lower than those for the bad firms in 2007. Column 2 indicates that the results are robust based on the rank data. Column 3 and column 4 show that the adjusted returns for the good firms are not statistically higher than those for the bad firms. In other words, the regression result is consistent with the graph and the statistical test in the sense that the returns for the good firms is higher than the returns for the bad firms, but the difference is not statistically significant. This result again does not provide strong evidence against the conclusion that people seem to understand the information in bad firms and good firms. Additionally, from Table 2.6, size consistently affects the adjusted returns based on this sample. The larger the firm, the smaller the return it generates.

2.6 Conclusion

This paper studies a group of 80 firms that actively participated in the stock investment in 2007 when the market was booming. In order to make a comparison, the paper uses another group of 80 firms that did not participate in stock market investment in 2007 as a control group. The study focuses on the period of 2006-2008.

Firstly, the characteristics of the earnings components are compared between these two groups in three recent years. The group of bad firms is proved to rely heavily on investment net income in 2007, and this reliance failed to help boost net earnings for 2008 because the stock market declined in 2008. In contrast, the good group consistently relied heavily on main operating income.

Secondly, it is shown that the earnings reversed statistically significantly for the

bad group and this was due to the statistically significant decline in investment net income. On the other hand, the earnings of the good group did not change significantly and neither the good group's main operating income nor investment income changed significantly.

Thirdly, earnings persistence and whether the stock market reflects the implication of the accounting information have been studied. It is found that both main operating income and investment net income persist into future earnings and that main operating income is more persistent than investment net income. The stock market acts as if investors correctly understand the implications of main operating income and investment net income at the same time.

Fourthly, the market adjusted return is used to further check whether the market correctly prices the good group and the bad group. The results show that returns for the good group are higher than that for the bad group in 2007 and 2008, but the difference is not statistically significant. This at least does not provide strong evidence against the idea that the market correctly prices the two groups of firms and understands the implications of the nonrecurring item.

By taking the advantage of the special stock market conditions in 2007 in China, this paper verifies the nonrecurring nature of a new type of special item and confirms that the less persistence feature of the average special item also exists in profits from securities. It also provides new evidence for the mixing literature on people's perceptions of the special item. The findings in this paper agree with Doyle, Lundholm and Soliman's (2003) observation that people seem to correctly understand the implications of the nonrecurring accounting item. More importantly, the paper helps to gain a better understanding of the financial market and investors' behavior in the emerging market and contributes to the literature on the emerging market.

APPENDIX

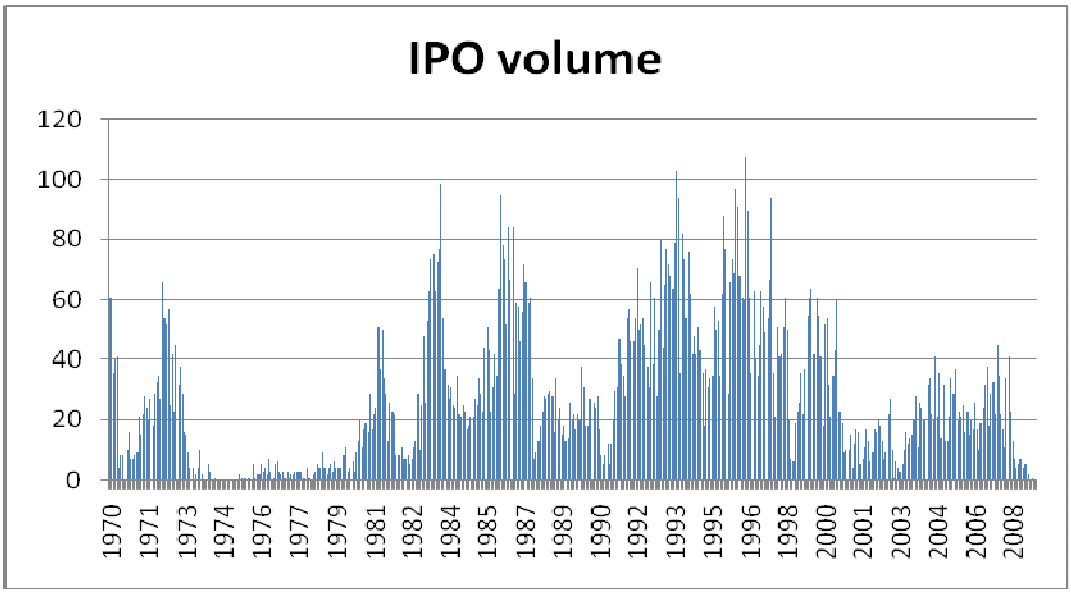


Figure 1.1: The IPO cycle from 1970 to 2008
The following graph shows the monthly IPO volume from 1970 to 2008. The volume is represented by the number of newly issued firms each month during these years.

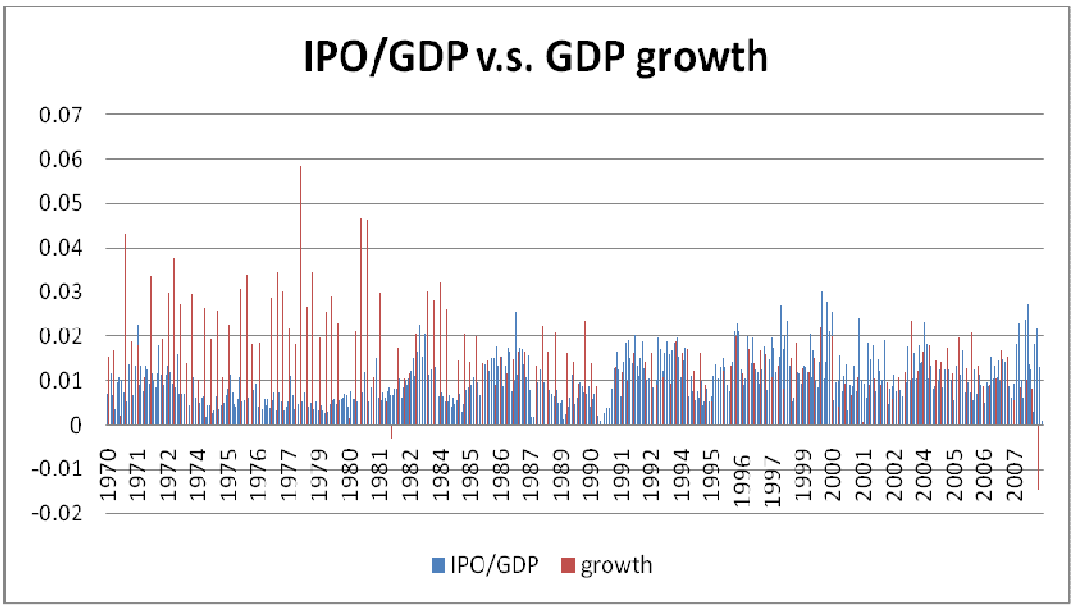


Figure 1.2: The IPO/GDP and the GDP growth

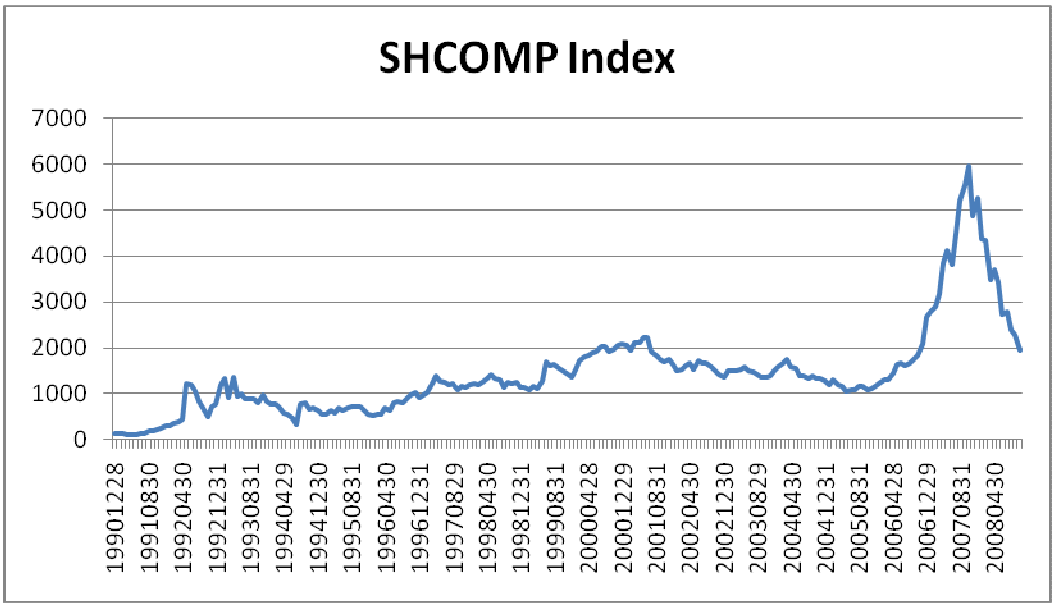


Figure 2.1: Shanghai Composite Index
The Shanghai Composite Index is created by the Shanghai Stock Exchange. It includes all of the listed firms on the Shanghai Stock Exchange. The index starts from Dec.19th 1990 and is a weighted average of the stock prices of all of the listed firms. Below is the trend of the index from 1990 to 2008.

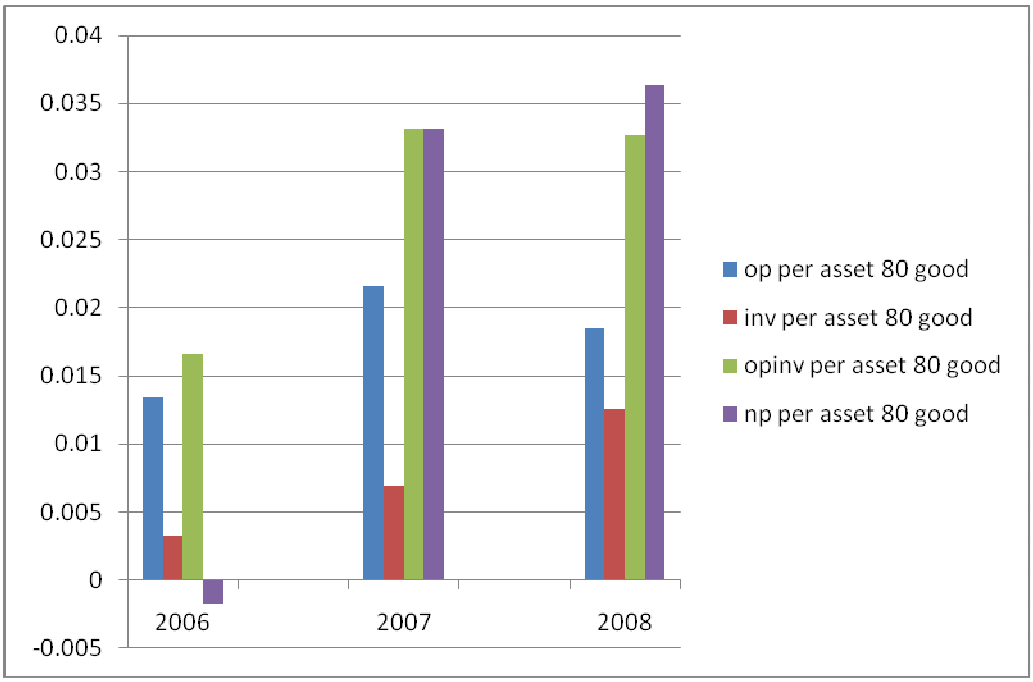


Figure 2.2 a.: Earnings components of two different groups of firms in 2006, 2007 and 2008.

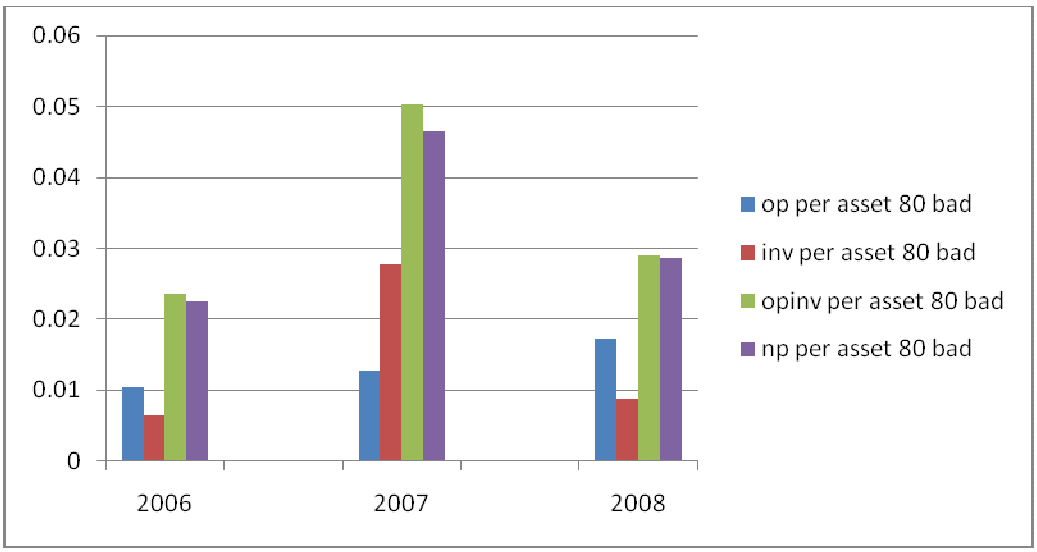


Figure 2.2 (Continued) b.
To simplify the explanation, the group of firms that rely heavily on stock transactions in 2007 is called the bad group and the other is called the good group. The first graph shows annual average net earnings components for the good group in 2006, 2007 and 2008. The second graph shows the same for the bad group. In each graph for each year, the first bar represents average main operating income. The second bar represents average investment net income excluding profits from investing in other firms. The third bar represents average total operating income, which includes both main operating income and investment net income. The fourth bar represents average net earnings. All of the accounting variables are standardized by total assets in the current year. op per asset is (operating activities' revenue- operating activities cost)/total assets; inv per asset is (investment net income- profit from the invested firms)/total assets; opinv per asset is operating profit/ total assets; np per asset is net profit/ total assets.

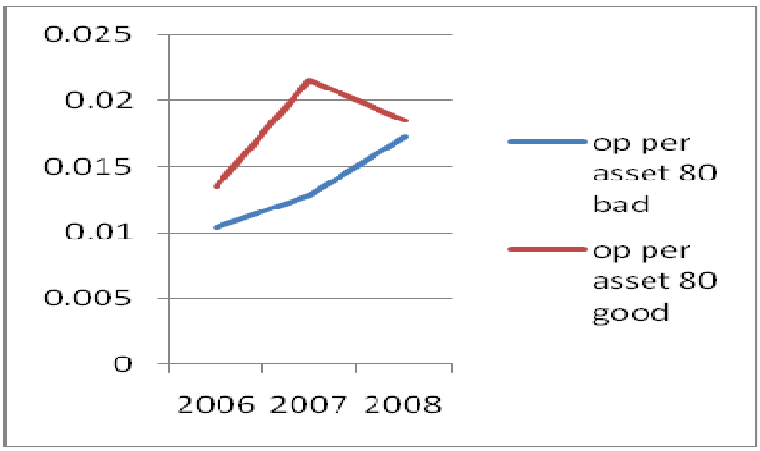
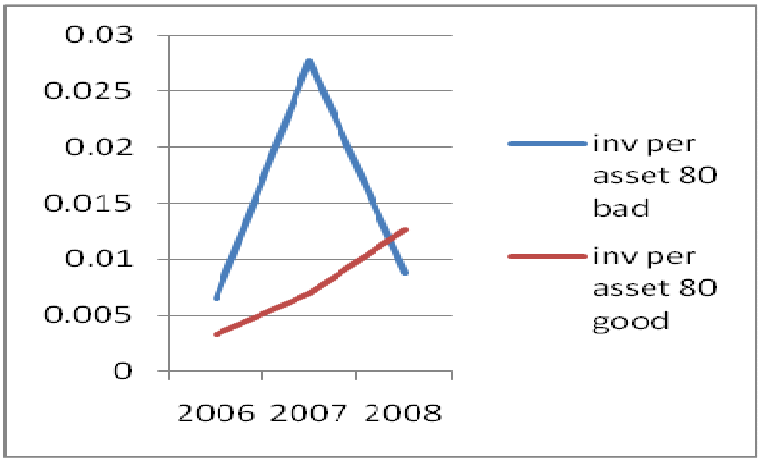


Figure 2.3: Earnings components trend of two different groups of firms

a. average main operating income/asset



b. average investment net income/asset

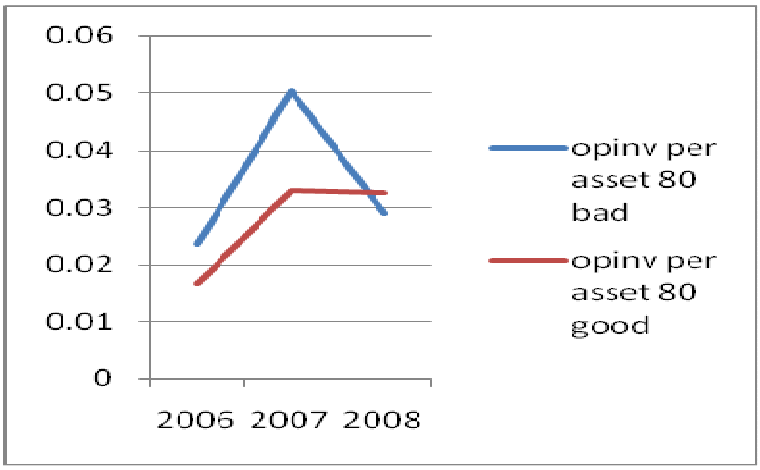
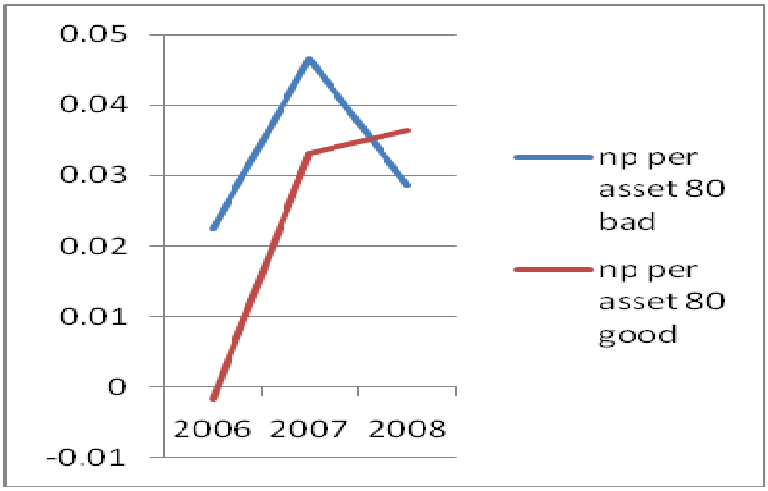


Figure 2.3 (Continued)

c. average total operating income/asset



d. average net earnings/asset

To simplify the explanation, the group of firms that rely heavily on stock transactions in 2007 is called the bad group and the other is called the good group. The graph a shows average operating income per asset from 2006 to 2008 for both groups. Graph b shows average investment net income per asset from 2006 to 2008 for both groups. The graph c shows average total operating income per asset from 2006 to 2008 for both groups. Graph d shows average net earnings from 2006 to 2008 for both groups. Each variable mentioned above is the average of the data for all of the firms. All of the accounting variables are standardized by total assets in the current year. op per asset is (operating activities' revenue- operating activities cost)/total assets; inv per asset is (investment net income- profits from invested firms)/total assets; opinv per asset is operating profit/ total assets; np per asset is net profit/ total assets.

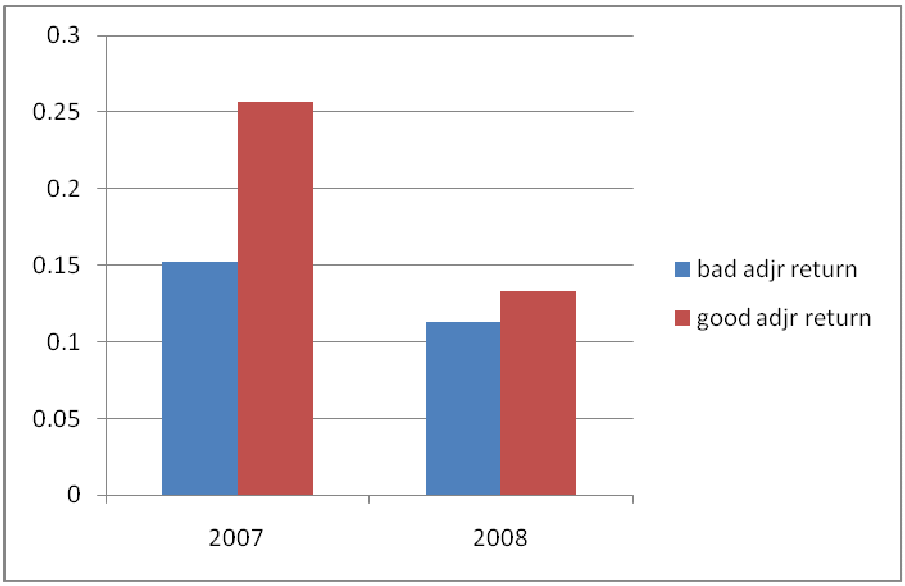


Figure 2.4: Adjusted returns of two groups of firms in 2007 and 2008

Good firms are defined as those firms listed on the Shanghai Stock Exchange that did not participate in stock investment in 2007. Bad firms are defined as those listed on the Shanghai Stock Exchange that participated in stock investment in 2007. The adjusted return is calculated as the raw return minus the market return of the Shanghai Composite Index. The raw return is based on the close price at the end of the announcement date and the close price one year later. The adjusted return is calculated for each listed firm first and then the average of the return of all of the firms is obtained. The adjusted return in the graph is the average adjusted return.

Table 1.1: Descriptive Statistics

The number of observations, minimum, maximum, mean, and standard deviation of the variables used in this paper, are presented in the following table. The last two columns describe the source of the data for each variable, and the time frequency of the data. Variables are divided into four groups. The first is variables for aggregate IPO activities. The second is the proxy for the timing hypothesis. The third and the fourth are proxies for the moral hazard. The third presents the financial health of IPO firms. The fourth represents the bankruptcy situation of IPO firms in the economy.

Variables	N	MIN	MAX	MEAN	STD	Source	Time
IPO_GDP	467	0.000894	0.0302	0.0101	0.0052	Fed/BEA	1970-2008(m/Q)
IPO_CPI	467	3.2906	150.2204	39.36495	26.02411	Fed/BLS	1970-2008(m/m)
IPON	468	0	108	27.6	23.3	SDC	1970-2008(m)
delnspx	468	-0.4715	0.2525	0.0346	0.099	Datastream	1970-2008(m)
Current	152	2.0636	4.9454	3.4012	0.6902	Compustat	1970-2008(Q)
Quick	152	0.6293	4.5767	2.6890	0.8984		
Cash	127	0.0423	0.2627	0.1249	0.0395		
Mba	155	0.68	130.38	6.94	13.73	Compustat	1970-2008(Q)
Mbe	155	-5.44	80.74	3.54	6.93		
Ep	155	-234.298	4.73	-1.71	18.85		
Ceppe	112	0.052	0.98	0.24	0.16		
Banksim_GDP	468	0.0013	0.0225	0.010679	0.0057	Administrative Office of the U.S. Courts; American Bankruptcy Institute	1970-1979(y) 1980-1990(Q) 1991-2003/3(m) 2003/4-2008/12(Q)
Banksim_CPI	468	6.82	78.04	34.655	14.7		
Bankint_GDP	468	0.0013	0.0225	0.010686	0.00573		
Bankint_CPI	468	6.83	77.83	34.668	14.59		

Table 1.2: The correlation between the business cycle and the financial health of companies

The Pearson correlation coefficient is presented in this table. In each cell, the first row is the correlation coefficient between the two variables related to the cell. The second row is the probability that the two variables are not correlated. The third row is the number of non-missing values.

	GDP	Current	Quick	Cash
GDP	1.0000 155			
Current	0.5998 <.0001 152	1.0000 152		
Quick	0.7290 <.0001 152	0.9416 <.0001 152	1.0000 152	
Cash	0.7573 <.0001 152	0.9472 <.0001 152	0.9873 <.0001 152	1.00000 152

Table 1.3: The effect of moral hazard proxied by accounting measures on the aggregate IPO activities.
(I). The result is based on Current ratio as a proxy.
The independent variables are Current and Delnspx. Current is defined as current assets divided by current liabilities and it is the average of Current for each firm in that quarter. Delnspx is ln(monthly S&P 500 index) minus its one-year moving average. The dependent variables are IPO_GDP, IPO_CPI and LNIPON. IPO_GDP is the total equity issued per month divided by GDP(current dollars and seasonally adjusted). IPO_CPI is the total equity issued divided by seasonally adjusted CPI. LNIPON is the natural log of the monthly number of IPOsThe table reports the coefficient, the Newey-West Robust standard error in the bracket, the adjusted R^2 and the number of observations used in each regression. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

	I		
	IPO_GDP	IPO_CPI	LNIPON
Constant	0.00122	-18.437**	0.2636
	(0.00142)	(6.7307)	(0.4662)
Current	0.00244***	16.5441***	0.71448***
	(0.00045)	(2.2097)	(0.1315)
Delnspx	0.01628***	44.6839**	4.65376***
	(0.00283)	(16.5032)	(0.7538)
Adjr R^2	0.2108	0.2388	0.3576
Obs	455	455	438

Table 1.3 (Continued)
(II) .The result is based on the cash ratio as a proxy.
The dependent variables and Delnspx are the same as those in the above table. The independent variable is Cash defined as cash divided by current liabilities. Similarly, it is the average of each individual firm's Cash.The table reports the coefficient, the Newey-West Robust standard error in the bracket, the adjusted R^2 and the number of observations used in each regression. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

	II		
	IPO_GDP	IPO_CPI	LNIPON
Constant	0.006***	10.65942***	1.64915***
	(0.0006)	(2.0821)	(0.2297)
Cash	0.00197***	15.33103***	0.58131***
	(0.00037)	(1.5891)	(0.1106)
Delnspx	0.01694***	47.1991**	4.94962***
	(0.00273)	(14.4751)	(0.6945)
Adjr R^2	0.2176	0.3156	0.3682
Obs	455	455	438

Table 1.3 (Continued)
(III) .The result is based on the quick ratio as a proxy.
The dependent variables and Delnspx are the same as those in the previous table and the independent variable is Quick defined as (current assets-inventory) divided by current liabilities. Months in the same quarter have the same ratio in that quarter and the Quick is the average of the Quick of each individual firm in that quarter. The table reports the coefficient, the Newey-West Robust standard error in the bracket, the adjusted R^2 and the number of observations used in each regression. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

	III		
	IPO_GDP	IPO_CPI	LNIPON
Constant	0.00459***	-0.86681	1.26318**
	(0.00098)	(3.6459)	(0.3359)
Quick	0.001816***	14.2951***	0.525468***
	(0.00038)	(1.6011)	(0.1111)
Delnspx	0.0175***	51.2334**	5.05704***
	(0.00276)	(14.924)	(0.7006)
Adjr R^2	0.2059	0.2933	0.342
Obs	455	455	438

Table 1.4: The effect of moral hazard proxied by bankruptcy records on the aggregate IPO.

(I) The independent variable is Delnspx and Banksimg or Banksimc. Delnspx is ln(monthly S&P 500 index) deducted by its one-year moving average. Banksimg is monthly business bankruptcy filings divided by seasonally adjusted GDP, Banksimc is monthly business bankruptcy filings divided by seasonally adjusted CPI. As bankruptcy data from 1970 to 2003 is not monthly, a simple average is used to obtain the monthly data. The dependent variables are IPO_GDP, IPO_CPI and LNIPON. IPO_GDP is the total equity issued per month divided by GDP(current dollars and seasonally adjusted). IPO_CPI is the total equity issued divided by seasonally adjusted CPI. LNIPON is the natural log of the monthly number of IPOs. In group II, dependent variables and Delnspx are the same as those in group I. The independent variable is Bankintg or Banksintc. These are the same as those in group I, except that linear interpolation is used to obtain the monthly data. The table reports the coefficient, the Newey-West Robust standard error in the bracket, the adjusted R^2 and the number of observations used in each regression. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

	I			
	IPO_GDP	IPO_CPI	LNIPON	LNIPON
Constant	0.01234***	66.3947***	3.1033***	2.8951***
	(0.000706)	(4.5666)	(0.1294)	(0.1436)
Banksimg	-0.26776***		-37.998**	
	(0.0548)		(13.9064)	
Banksimc		-0.8631***		-0.00537
		(0.1177)		(0.00463)
Delnspx	0.018938***	82.2641***	5.2912***	5.14096***
	(0.00272)	(14.3726)	(0.7284)	(0.731)
Adjr R^2	0.1868	0.2736	0.2035	0.1691
Obs	467	467	447	447

Table 1.4 (Continued)
(II) The dependent variables and Delnspx are the same as those in the above table. The independent variable is Bankintg or Banksintc. These are the same as those in group I, except that linear interpolation is used to obtain the monthly data. The table reports the coefficient, the Newey-West Robust standard error in the bracket, the adjusted R^2 and the number of observations used in each regression. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

	II			
	IPO_GDP	IPO_CPI	LNIPON	LNIPON
Constant	0.01233***	66.64781***	3.1043***	2.893415***
	(0.00071)	(4.5942)	(0.1302)	(0.1442)
Bankintg	-0.26675***		-38.0876**	
	(0.055)		(14.0126)	
Bankintc		-0.8689***		-0.00532
		(0.1183)		(0.00467)
Delnspx	0.018743***	80.9127***	5.2848***	5.13689***
	(0.00272)	(14.2458)	(0.7282)	(0.7312)
Adjr R^2	0.1856	0.2741	0.2033	0.169
Obs	467	467	447	447

Table 1.5: The effect of financial health in the past on the aggregate IPO activities
The table below is based on monthly data from 1970 to 2008 and tests the effect of the lagged variable on aggregate IPO activities. The dependent variable is IPO_GDP. IPO_GDP is the total equity issued per month divided by GDP (current dollars and seasonally adjusted). The independent variables are Delnspx, Current and its lags. Delnspx is ln(monthly S&P 500 index) deducted by its one-year moving average. Current is defined as current assets divided by current liabilities and is the average of Current for each firm in that quarter. As Current is a ratio and obtained in quarters, the Current for each month in the same quarter is the same as the Current in the quarter. The lags are lagged by one month, two months, three months, and six months. This table reports the coefficient, the Newey-West Robust standard error in the bracket, the adjusted R^2 and the number of observations used in each regression. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

	IPO_GDP	IPO_GDP	IPO_GDP	IPO_GDP	IPO_GDP
Constant	0.00122	0.000763	0.000926	0.001935**	0.00157
	(0.00142)	(0.00141)	(0.00138)	(0.00142)	(0.00154)
Current $_t$	0.00244***				
	(0.00045)				
Current $_{t-1}$		0.002587***			
		(0.000447)			
Current $_{t-2}$			0.002544***		
			(0.000435)		
Current $_{t-3}$				0.00224***	
				(0.000436)	
Current $_{t-6}$					0.002364***
					(0.000478)
Delnspx$_t$	0.01628***	0.015993***	0.015991***	0.01684***	0.016651***
	(0.00283)	(0.00301)	(0.00307)	(0.00289)	(0.0029)
Adjr R^2	0.2108	0.2132	0.2037	0.1850	0.1943
Obs	455	455	455	455	452

Table 1.6: The effect of the past bankruptcy record on the aggregate IPO activities
The table below is based on monthly data from 1970 to 2008 and tests the effect of the lagged variable on aggregate IPO activities. The dependent variable is IPO_GDP. IPO_GDP is the total equity issued per month divided by GDP(current dollars and seasonally adjusted). The independent variables are Delnspx, Current and its lags. Delnspx is ln(monthly S&P 500 index) deducted by its one-year moving average. Banksimg is the monthly business bankruptcy filings divided by seasonally adjusted GDP. As the bankruptcy data from 1970 to 2003 is not monthly, a simple average is used to obtain monthly data. The lags are lagged by one month, two months, three months, and six months. The table reports the coefficient, the Newey-West Robust standard error in the bracket, the adjusted R^2, and the number of observations used in each regression. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

	IPO_GDP	IPO_GDP	IPO_GDP	IPO_GDP	IPO_GDP
Constant	0.01234***	0.012269***	0.012306***	0.012289***	0.012379***
	(0.000706)	(0.00075)	(0.0007)	(0.00075)	(0.000767)
Banksimg $_t$	-0.26776***				
	(0.0548)				
Banksimg $_{t-1}$		-0.26134***			
		(0.0586)			
Banksimg $_{t-2}$			-0.26413***		
			(0.0580)		
Banksimg $_{t-3}$				-0.26411	
				(0.0577)	
Banksimg $_{t-6}$					-0.27286***
					(0.0595)
Delnspx $_t$	0.018938***	0.019021***	0.019108***	0.019325***	0.019463***
	(0.00272)	(0.00287)	(0.00287)	(0.00286)	(0.00288)
Adjr R^2	0.1868	0.1810	0.1815	0.1826	0.1879
Obs	467	466	465	464	461

Table 1.7: The effect of moral hazard proxied by accounting measures on aggregate IPO activities after controlling for the free cash flow problem.
(I) The independent variables are Current, MBA, and Delnspx. Current is defined as current assets divided by current liabilities. MBA is the total market value of the asset to the total book value of the asset. It is used a proxy for the investment opportunity. Delnspx is ln(monthly S&P 500 index) minus its one-year moving average. The dependent variables are IPO_GDP, IPO_CPI, and LNIPON. IPO_GDP is the total equity issued per month divided by GDP (current dollars and seasonally adjusted). IPO_CPI is the total equity issued divided by seasonally adjusted CPI. LNIPON is the natural log of the monthly number of IPOs. The table reports the coefficient, the Newey-West Robust standard error in the bracket, the adjusted R^2, and the number of observations used in each regression. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

	I		
	IPO_GDP	IPO_CPI	LNIPON
Constant	0.00151	-13.8528*	0.215277
	(0.00155)	(7.1631)	(0.5157)
Current	0.00229***	14.2298***	0.740386***
	(0.0005)	(2.5014)	(0.1472)
MBA	0.000027	0.43037	-0.00503*
	(0.000036)	(0.2674)	(0.00297)
Delnspx	0.01667***	50.85714**	4.565283***
	(0.00281)	(15.5242)	(0.8189)
Adj R^2	0.2139	0.2867	0.3600
Obs	455	455	438

Table 1.7 (Continued)
(II) The dependent variables and the MBA, as well as the Delnspx, are the same as those in the previous table. The independent variable is Cash defined as cash divided by current liabilities. In group III, the dependent variables and the MBA, as well as the Delnspx, are the same as those in group I, and the independent variable is Quick defined as (current assets-inventory) divided by current liabilities. The table reports the coefficient, the Newey-West Robust standard error in the bracket, the adjusted R^2, and the number of observations used in each regression. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

	II		
	IPO_GDP	IPO_CPI	LNIPON
Constant	0.006***	11.4157***	1.62758***
	(0.0006)	(2.2052)	(0.2554)
Cash	0.001893***	13.56799***	0.635269***
	(0.000432)	(1.9751)	(0.1296)
MBA	0.000014	0.308579	-0.00951*
	(0.000033)	(0.2385)	(0.00409)
Delnspx	0.01714***	51.60372**	4.797856***
	(0.00276)	(14.1025)	(0.7581)
Adj R^2	0.2171	0.3380	0.3799
Obs	455	455	438

Table 1.7 (Continued)
(III). The dependent variables and the MBA, as well as the Delnspx, are the same as those in group I, and the independent variable is Quick defined as (current assets-inventory) divided by current liabilities. The table reports the coefficient, the Newey-West Robust standard error in the bracket, the adjusted R^2, and the number of observations used in each regression. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

	III		
	IPO_GDP	IPO_CPI	LNIPON
Constant	0.004716***	1.310134	1.21987**
	(0.00107)	(3.9123)	(0.3765)
Quick	0.001711***	12.5097***	0.56292***
	(0.00035)	(1.9171)	(0.1282)
MBA	0.00002	0.346487	-0.0074**
	(0.000034)	(0.2436)	(0.0037)
Delnspx	0.017736***	55.60887***	4.94647***
	(0.00279)	(14.3083)	(0.7613)
Adj R^2	0.2067	0.3225	0.3486
Obs	455	455	438

Table 1.8: The effect of moral hazard proxied by bankruptcy records on aggregate IPO activities after controlling for the free cash flow problem.
(I). The independent variable is MBA, Delnspx and Banksimg, or Banksimc. Delnspx is ln(monthly S&P 500 index) deducted by its one-year moving average. MBA is the total market value of the asset to the total book value of the asset. It is used as a proxy for the investment opportunity. Banksimg is monthly business bankruptcy filings divided by seasonally adjusted GDP, and Banksimc is monthly business bankruptcy filings divided by seasonally adjusted CPI. The dependent variables are IPO_GDP, IPO_CPI, and LNIPON. IPO_GDP is the total equity issued per month divided by GDP (current dollars and seasonally adjusted). IPO_CPI is the total equity issued divided by seasonally adjusted CPI. LNIPON is the natural log of the monthly number of IPOs. The table reports the coefficient, the Newey-West Robust standard error in the bracket, the adjusted R^2, and the number of observations used in each regression. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

	I			
	IPO_GDP	IPO_CPI	LNIPON	LNIPON
Constant	0.01217***	60.1589***	3.2508***	2.8889***
	(0.000948)	(6.5125)	(0.1876)	(0.2031)
Banksimg	-0.26063**		-46.659**	
	(0.0689)		(17.0805)	
Banksimc		-0.7448***		-0.00512
		(0.1530)		(0.00551)
MBA	-3.94E-7	0.22889	-0.00667	0.00061
	(0.000028)	(0.2127)	(0.00474)	(0.00361)
Delnspx	0.020204***	88.9764***	5.1612***	5.0264***
	(0.00286)	(13.5743)	(0.7815)	(0.7892)
Adj R^2	0.1919	0.2962	0.1968	0.1560
Obs	464	464	446	446

Table 1.8 (Continued)
(II). The dependent variables and the MBA, as well as the Delnspx, are the same as those in the previous table. The independent variable is Bankintg or Banksintc. These are the same as those in group I, except that linear interpolation is used to obtain the monthly data. The table reports the coefficient, the Newey-West Robust standard error in the bracket, the adjusted R^2, and the number of observations used in each regression. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

	II			
	IPO_GDP	IPO_CPI	LNIPON	LNIPON
Constant	0.01216***	60.41468***	3.2539***	2.88644***
	(0.000959)	(6.5838)	(0.1892)	(0.2042)
Bankintg	-0.25904**		-46.9099**	
	(0.0694)		(17.2626)	
Bankintc		-0.74977***		-0.005305
		(0.1547)		(0.00556)
MBA	-2.17E-7	0.224619	-0.00673	0.000641
	(0.000028)	(0.2118)	(0.00477)	(0.0036)
Delnspx	0.019995***	87.6666***	5.1534***	5.02221***
	(0.00287)	(13.5264)	(0.7812)	(0.7892)
Adj R^2	0.1905	0.2956	0.1968	0.1558
Obs	464	464	446	446

Table 1.9: The effect of financial health in the past on aggregate IPO activities after controlling for the free cash flow problem
The dependent variable is IPO_GDP. IPO_GDP is the total equity issued per month divided by GDP. The independent variables are MBA, Delnspx, Current, and its lags. MBA is the total market value of the asset to the total book value of the asset. Delnspx is ln(monthly S&P 500 index) deducted by its one-year moving average. Current is defined as current assets divided by current liabilities. The lags are lagged by one month, two months, three months, and six months. The table reports the same statistics. The 1% level of significance, the 5% level of significance and the 10% level of significance are represented by ***, **,* respectively.

	IPO_GDP	IPO_GDP	IPO_GDP	IPO_GDP	IPO_GDP
Constant	0.00151	0.001001	0.001161	0.002237**	0.001782
	(0.00155)	(0.00147)	(0.00142)	(0.00145)	(0.00156)
Current $_t$	0.00229***				
	(0.0005)				
MBA $_t$	0.000027				
	(0.000036)				
Current $_{t-1}$		0.002465***			
		(0.000482)			
MBA $_{t-1}$		0.000023			
		(0.000035)			
Current $_{t-2}$			0.002424***		
			(0.000467)		
MBA $_{t-2}$			0.000023		
			(0.000031)		
Current $_{t-3}$				0.002085***	
				(0.00046)	
MBA $_{t-3}$				0.00003	
				(0.000028)	
Current $_{t-6}$					0.002255***
					(0.0005)
MBA $_{t-6}$					0.00002
					(0.00003)
Delnspx$_t$	0.01667***	0.01628***	0.01623***	0.017154***	0.017003***
	(0.00281)	(0.0029)	(0.003)	(0.00281)	(0.00286)
Adjr R^2	0.2139	0.2149	0.2054	0.1891	0.1951
Obs	455	455	455	455	452

Table 1.10: The effect of the past bankruptcy record on the aggregate IPO activities after controlling for the free cash flow problem

The dependent variable is IPO_GDP. IPO_GDP is the total equity issued per month divided by GDP. The independent variables are MBA, Delnspx, Current, and its lags. MBA is the total market value of the asset to the total book value of the asset. Delnspx is ln(monthly S&P 500 index) deducted by its one-year moving average. Banksimg is monthly business bankruptcy filings divided by seasonally adjusted GDP. The lags are lagged by one month, two months, three months, and six months. The table reports the same statistics. The 1% level of significance, the 5% level of significance and the 10% level of significance are represented by ***, **,*.

	IPO_GDP	IPO_GDP	IPO_GDP	IPO_GDP	IPO_GDP
Constant	0.01217***	0.012272***	0.012431***	0.012305***	0.0126***
	(0.000948)	(0.000955)	(0.000932)	(0.000949)	(0.000962)
Banksimg $_t$	-0.26063**				
	(0.0689)				
MBA $_t$	-3.94E-7				
	(0.000028)				
Banksimg $_{t-1}$		-0.26305***			
		(0.0689)			
MBA $_{t-1}$		-0.34E-6			
		(0.000026)			
Banksimg $_{t-2}$			-0.27147***		
			(0.0671)		
MBA $_{t-2}$			-5.63E-6		
			(0.000022)		
Banksimg $_{t-3}$				-0.26512***	
				(0.0685)	
MBA $_{t-3}$				-8.01E-7	
				(0.000022)	
Banksimg $_{t-6}$					-0.28732***
					(0.069)
MBA $_{t-6}$					-0.00001
					(0.00002)
Delnspx $_t$	0.020204***	0.019596***	0.01898***	0.01933***	0.0194***
	(0.00286)	(0.00297)	(0.00309)	(0.00286)	(0.0029)
Adjr R^2	0.1919	0.1789	0.1747	0.1808	0.1868
Obs	464	464	464	464	461

Table 2.1: Sample selection

Total number of listed firms in Shanghai Stock Exchange in 2008	854
- The number of firms that were newly listed in 2008	6
- Number of firms whose stock investment activities in 2007 were hard to observe from the annual report	186
= Number of firms that participated in stock transactions in 2007	209
+ Number of firms that did not hold stocks in 2007	453
Out of 209 firms:	
Total number of nonfinancial firms that participated in stock transactions in 2007	198
- Number of firms that did not rely heavily on the stock capital gains in 2007[8]	74
= Number of firms that relied heavily on stock capital gains in 2007	124
Out of 453 firms:	
Total number of nonfinancial firms that did not hold stocks in 2007	444

The final sample for the study is 80 firms from the 125 sample and matched 81 firms from the 444 sample. The reason why 80 firms are the final sample is that when matching some firms could not find the matched firm in the same industry or could not find the matched firm with a similar size. Here the similar size is considered as the size of the matched firm is not beyond the +/- 120% of the target firm's size.

If the operating income is negative and the investment net income that might be due to the stock investment is positive, then this firm is regarded as relying quite heavily on the stock capital gains. If the operating income and the investment net income that might be due to the stock investment are positive and the ratio of the investment net income that might be due to the stock investment over the operating income is greater than 0.01, then the firm is regarded as relying quite heavily on the stock capital gains.

Table 2.2-2007: Earnings growth in 2007 and 2008
The following tables show the descriptive statistics for the growth rate for earnings components in 2007. op is the growth rate for main operating profit. Main operating profit is defined as operating revenue minus operating cost; inv is the growth rate for investment net income that excludes profits from invested companies; opt is the growth rate of operating profit which includes both main operating profit and investment net income. The sign test probability is listed in the table to show if the median of the growth is statistically different from zero. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

2007	**Group**	**N**	**Mean**	**Median**	**Std**	**Min**	**Max**	**t**	**p**	**sign test p**
op	Bad	43	0.011	-0.186	0.95	-0.9	4.730	0.073	0.955	0.911
	Good	54	0.618	0.132	2.25	-0.9	15.2	2.014	0.049**	0.22
inv	Bad	65	11.636	2.268	24.6	-0.9	137.5	3.812	0.0003***	<0.0001***
	Good	49	2.996	0	11.6	-1	61.7	1.814	0.076*	0.201
opt	Bad	62	1.676	0.219	4.75	-0.9	26.5	2.776	0.0073***	0.0071***
	Good	62	1.016	0.213	3.07	-1.0	17.118	2.608	0.011	0.007***

Table 2.2-2008: Earnings growth in 2007 and 2008
The following tables show the descriptive statistics for the growth rate of the earnings components in 2008. op is the growth rate of main operating profit. Main operating profit is defined as operating revenue minus operating cost; inv is the growth rate of investment net income that excludes profits from invested companies; opt is the growth rate for operating profit which includes both main operating profit and investment net income. The sign test probability is listed in the table to show if the median of the growth is statistically different from zero. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

2008	**Group**	**N**	**Mean**	**Median**	**Std**	**Min**	**Max**	**t**	**p**	**sign test p**
op	Bad	39	0.852	0.066	4.32	-0.87	26.63	1.233	0.225	0.871
	Good	49	0.882	0.018	4.85	-0.95	33.4	1.272	0.201	0.471
inv	Bad	56	-0.58	-0.607	0.32	-1	0.38	-13.6	<0.0001	<0.0001***
	Good	40	4.909	-0.174	23.43	-99.5	161.07	1..325	0.193	0.099
opt	Bad	51	-0.05	-0.289	1.60	-1	10.713	-0.20	0.841	0.0002***
	Good	55	0.097	-0.014	0.95	-0.94	5.865	0.761	0.450	1

Table 2.3: Testing earnings components contribution to the future earnings.
$Earnings_{t+1} = b + bopa*operating\ income_t + bia*inv\ income_t + v_{t+1}$
The sample consists of observations from 2006 to 2008. Earnings is net earnings divided by average total assets. Operating income is main operating income divided by average total assets. Investment net income is investment net income listed in the income statement minus profit from investing in other firms. Standard errors are in parentheses. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

	$Earnings_{t+1}$	$Earnings_{t+1}$	$Earnings_{t+1}$ (rank)	$Earnings_{t+1}$ (rank)
intercept	0.03***	0.03***	1.48***	1.70***
	(0.004)	(0.003)	(0.36)	(0.24)
Operating income	0.28***		0.5***	
	(0.05)		(0.05)	
Investment net income	0.08		0.18**	
	(0.13)		(0.05)	
$Earnings_t$		0.23***		0.64***
		(0.04)		(0.04)
Adjr-R^2	0.08	0.09	0.26	0.39
Obs	320	320	320	320
H0 :bopa=1; H1:bopa<1	Rejected H0 ***		Rejected H0 ***	
H0 : bia=1; H1:bia<1	Rejected H0 ***		Rejected H0 ***	
H0 : bopa=bia; H1:bopa>bia	Cannot reject		Rejected H0 ***	

Table 2.4: The Mishkin Test of the market pricing of earnings components with respect to their implications for one-year-ahead earnings
Operating income is main operating income divided by average total assets for each listed firm. Investment net income is investment net income listed in the income statement minus profits from investing in the other firms. This is also a firm-year observation. Adjusted returns are computed by taking raw returns and subtracting the market returns during the same period from the raw returns for each listed firm. The return cumulating period starts at the announcement date and ends one year later. The sample consists of firm-year observations between 2006 and 2008.

Panel A: market pricing of earnings components with respect to their implications for one-year-ahead earnings

$$Earnings_{t+1} = b + bopa*operating\ income_t + bia*inv\ income_t + v_{t+1}$$

$$AdjrR_{t+1} = a + \beta*(\ Earnings_{t+1} - b - bop*operating\ income_t - bi*inv\ income_t) + \varepsilon_{t+1}$$

Parameter	Estimate	Std	Parameter	Estimate	Std
bopa	0.5	0.05	bop	0.14	0.29
bia	0.18	0.05	bi	0.21	0.27

Panel B: Tests of rational pricing of earnings components

Null Hypotheses			Likelihood Ratio Statistics	0.1 significant level 's critical value
bop=bopa and bi=bia			1.86	4.61

Table 2.5: Descriptive statistics for the adjusted return
The following tables show the descriptive statistics for adjusted returns for the bad group and those for the good group in 2007 and 2008. Adjusted returns are computed by taking raw returns and subtracting market returns during the same period from the raw returns for each listed firm. The return cumulating period starts at the announcement date and ends one year later. The sign rank test probability is listed in the table to show whether the median of the growth is statistically different from zero.

2007	**Group**	**N**	**Mean**	**Median**	**Std**	**Min**	**Max**
Adjr07	Bad	80	0.152	0.058	0.454	-0.54	1.92
	Good	79	0.257	0.072	0.645	-0.65	3.24
Adjr08	Bad	80	0.113	0.074	0.207	-0.18	0.74
	Good	80	0.133	0.104	0.23	-0.33	1.17

Table 2.6: $Adjr_{t+1} = a + a_1*group_t + a_2*industry + a_3*size_t + v_{t+1}$
Adjusted returns are computed by taking raw returns and subtracting market returns during the same period from the raw returns for each listed firm. The return cumulating period starts at the announcement date and ends one year later. If the group is 1, that indicates that the firm is in the good group. If the group is 0, that indicates that the firm is in the bad group. Industry is defined by China's Securities Regulatory Commission. These definitions have both broad and the detailed versions. Here the detailed versions are used. Size is the total market value at the end of the calendar year. Standard errors are in parentheses. The 1% level of significance is represented by ***. The 5% level of significance is represented by **. The 10% level of significance is represented by *.

	$Adjr_{2007}$	$Adjr_{2007}$ (rank)	$Adjr_{2008}$	$Adjr_{2008}$ (rank)
intercept	4.91***	27.06***	0.77	16.04**
	(1.15)	(5.87)	(0.48)	(6.39)
Group	0.11	0.27	0.02	0.40
	(0.08)	(0.4)	(0.03)	(0.44)
Industry	-0.03*	-0.20***	0.02**	0.18**
	(0.01)	(0.07)	(0.006)	(0.07)
Size	-0.2***	-0.95***	-0.04*	-0.60**
	(0.05)	(0.26)	(0.02)	(0.28)
Adjr-R^2	0.09	0.09	0.08	0.07
Obs	159	159	160	160

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