國 立 交 通 大 學

財 務 金 融 研 究 所

碩 士 論 文

公司治理與情緒性因子的價格敏感度

Corporate Governance and Price Sensitivity of Sentiment

Factor

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摘要

　　公司治理一直是財務研究中的重要議題之一。公司治理較差的公司,其管理階層擁有相對較大的權力且不受制於董事會的控管,導致管理階層容易做出圖利自己傷害公司及股東的決策,進而影響到公司的營運績效,影響投資人的投資意願。本篇研究利用1990到2005年的美國資料,意圖探究公司治理和投資人情緒的價格敏感度的關係。也就是說當公司治理改變時,是否會使得投資人的情緒受到影響。我們發現具有以下特性的公司隨著公司治理變差較容易受到投資人情緒影響而改變報酬的公司:年輕的公司、市值較低的公司、低獲利能力的公司、不發股利的公司、具有成長機會及財務危機的公司。另外,我們也發現公司治理的差異會導致投資人情緒影響程度的不同。

關鍵字:公司治理、併購條款、情緒、公司特徵

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ABSTRACT

The purpose of this paper tries to investigate the relationship between corporate governance and the sensitivity of the price of sentiment factor, i.e. sentiment beta. It is defined as a sensitivity of stock returns to sentiment change. We provide evidence that small stocks, young stocks, unprofitable stocks, non-dividend-paying stocks, extreme growth stocks and distressed stocks are easily affected by investor sentiment and the change of governance has effect on investor sentiment. In addition, we also find that the difference of corporate governance results in the difference of sentiment beta of the firms.

Keywords: corporate governance; takeover provisions; sentiment; firm characteristics

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I. Introduction

Corporate governance is a set of policy, law, and system that decreases agency cost to increase quality of decisions that maximize the shareholder value of the company. Corporate governance has again become an important issue because of the crash of Enron and WorldCom where managers abused their powers to consolidate their status in recent years.

Gompers, Ishii, and Metrick (2003) is aroused much discussion and debate ever since. They took 24 antitakeover provisions related shareholder rights to build governance index, i.e. the G-index. When the G-index increases, the firms tend to experience bad governance. Instinctively, good governance results in good performance and has a positive influence on the stock price in the stock market. They developed an investment portfolio that purchased the stock with low G index (well-governed) and sold the stock with a high G index (badly-governed), and where gained abnormal return of 8.5 percent per year. However, Core, Guay, and Rusticus (2006) provided evidence that firms with poor corporate governance have significant poor operating performance but they do not find as GIM in the stock market when using the analysts' forecast and earnings announcement. On the other hand, there is no evidence that corporate governance resulted in unexpected cash flow to shock stock market in the future.

One of a series of G index papers that discussed this issue is Cremers and Nair (2005). They find that corporate governance can directly affect securities prices. Therefore, there are several reasons that investors have incentives to hold well-governance firms. First, well-governance firms could imply a higher probability to be merged (Ambrose and Megginson (1992)), providing traders more incentives to arbitrage or speculate. Second, another paper from Ferreira and Laux (2007) suggest

that well-governance firms using fundamental antitakeover provisions that release a signal of openness to the market for control right, including being open to sharing information with investors. Thus, when governance level is changed, investors should perform corresponding investment decisions and behaviors then resulted in change of investor sentiment for individual firm. This paper would like to contribute to the understanding of relationship between sentiment factor and corporate governance; particularly, the research will investigate the relationship among sentiment factor, corporate governance, and firm characteristics.

One goal of this paper is to ascertain whether investor sentiment is affected by the change of corporate governance. We use sentiment beta, which means price sensitivity of sentiment, to estimate sentiment effect for each firm. If firms with poor governance lead to large change on investor sentiment, it implies that these firms which are affected easily by sentiment are hard-to-value and difficult-to-arbitrage and are more affected by investor sentiment than better corporate governance firms. Therefore, governance indeed plays an important role on investor sentiment.

In addition, Gompers, Ishii, and Metrick (2003) argue that poor performance of firms with more restrictions on shareholder rights may be driven by some unobservable firm characteristics. Baker and Wurgler (2007) find that the sentiment index they conducted can capture major fluctuation and security return of some special characteristics which are easily affected by sentiment. After confirming the first goal of relationship between sentiment and corporate governance, the second stage of this paper is to examine whether characteristics of firms have different effect on corporate governance and investor sentiment. The hypothesis is as follows: if firms of similar characteristics, would their sentiment betas be different under different governance level? On the contrary, when firms of the same governance level, would their sentiments beta also be different due to different characteristics?

The following is organized as follows. Section II is the literature reviews about the relationship between corporate governance and investor sentiment. Section III describes the data source, and the methodology. Section IV presents the empirical results, and Section V concludes the paper.

II. Literature Review and Hypothesis Development

2.1 Corporate Governance and Stock Return

Previous studies have suggested the relationship of corporate governance and firm performance. Agency problems can be alleviated through the internal or external rules of corporate finance, including boards of directors, ownership structure, the takeover market, and the legal system. Intuitively, well-governance firms have fewer regulations than bad ones. As a result, in the takeover market if a firm has many antitakeover provisions, it will be difficult to be acquired and managers might use privilege to compensate themselves and damage shareholder right of the firms.

Gompers, Ishii, and Metrick (2003) use 24 antitakeover provisions to construct governance index (G-index). They find that firms with strong shareholder rights (better governance, fewer antitakeover provisions) have higher firm value, higher profits, higher sales growth, lower capital expenditures, and make fewer corporate acquisitions. A series of papers based on GIM (2003), Masulis, Wang, and Xie's (2007) finding show that acquisitions with more antitakeover provisions experience significantly lower announcement period abnormal stock returns. Cremers and Nair (2005) investigate how the market for corporate control (external governance) and shareholder activism (internal governance) interact. Bebchuk, Cohen, and Ferrell (2005)[1] construct analogical index. They find that firms with higher levels of the entrenchment index were associated with large negative abnormal returns during the 1990-2003 period. Core, Guay, and Rusticus (2006) discover that firms with weak shareholder rights exhibit significant operating underperformance.

Because Gompers, Ishii, and Metrick (2003) and Bebchuk, Cohen, and Ferrell (2005) provide an argument that well governance seems to play an important role on

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[1] Bebchuk and Cohen (2005) follow GIM's procedure, but they only choose six provisions that they consider to estimate governance.

the outstanding performance of stock returns in the 1990s. GIM use the strategy that is to buy well-governance firms and sell short bad-governance firms to earn 8.5% each year. Because bad governance causes agency cost, it will result in poor performance on those firms. (Fahlenbrach, 2003) If investors have observed this opportunity, they will arbitrage to make the price converge to real equilibrium. Thus, Core, Guay, and Rusticus (2006) examine the relationship between corporate governance and stock returns to see if any causality exists. From Core, Guay, and Rusticus's view, although firms with weak shareholder rights exhibit significant operating underperformance, they do not discover that weak governance causes weak stock returns, no matter they use the analysts' forecast or earnings announcement returns. And their study shows that someone would expect well-governed firms to outperform poorly governed firms as investors realize the importance of good governance. They consider it as a "governance crisis." Other factors may drive this puzzle[2]. (Core, Guay, and Rusticus (2006)).

2.2 Market Sentiment and Stock Return

In traditional financial theorem, market investors are rational and have free will so investor sentiment does not play an important role on the stock returns. In the capital asset pricing model, systematic risk is the main factor to explain stock return under diversification. If investors bear more systematic risk, they will get more expected return. However, in behavioral financial theorem, De long et al (1990) divided investor into two types: noise traders with erroneous stochastic beliefs impacting on prices and rational arbitrageurs aggressively betting against the other type. Therefore, there are two assumptions in behavioral finance before advanced analysis. First, investors' decisions are impacted by their sentiment. This beginning of

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[2] CGR consider that is caused by speculation in the specific period. CGR also exclude the sample of the new economy, but it did not explain weak governance firms with outperformance than well governance firms completely.

transition is Keynes (1936) that economic fluctuations can be partly explained by spontaneous (or exogenous) shifts in moods (optimism or pessimism). Second, rational arbitragers bet against noise traders with cost and risk. When there are noise traders in the stock market, their misevaluation enlarge the difference between equilibrium and shock in the short run. Therefore, there is limitation in arbitrage. This paper is also based on these assumptions.

Kothari and Shanken (1997), Neal and Wheatley (1998), Shiller (1981, 2000), Baker and Wurgler (2000) have investigated market sentiment to explain time series returns. In recent studies, Baker and Wurgler (2006), Frazzini and Lamont (2006), Lemmon and Portniaguina (2006) have showed the explanatory power for the cross-section of stock returns. Baker and Wurgler (2007) provide evidence that their sentiment index can capture major fluctuations in sentiment and use sentiment to explain current returns. More importantly, how can we understand the stock return's variation when sentiment changes by one basis point? We should estimate this change by the sentiment beta. Glushkov (2006) defines the sentiment beta as a sensitivity of stock returns to sentiment change. Wurgler and Zhuravskaya (2002) argue that firms with some characteristics have higher idiosyncratic risk which leads to arbitrage especially risky and selling short difficultly (D'Avolio (2002), Jones and Lamont (2002)). Furthermore, Baker and Wurgler (2006) and Glushkov (2006) find that hard to value and difficult to arbitrage stocks are easily affected by investor sentiment. There are some characters with hard-to-value and difficult-to-arbitrage firms: small stocks, young stocks, high volatility stocks, unprofitability stocks, non-dividend-paying stocks, and extreme growth stocks. They also discover that if the beginning of sentiment indicator is low, hard-to-value and difficult-to-arbitrage firms will have higher return in the subsequent period. In other words, if beginning of sentiment indicator is high, these firms will have relatively lower return in the

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subsequent period.

2.3 Market Sentiment and Corporate Governance

Cremers and Nair (2005) find that governance can affect securities prices. Investors can buy well-governance firms and sell short bad-governance firms to earn abnormal return (Gompers, Ishii, and Metrick, 2003). There are several reasons that investors have incentives to hold well-governance firms. First, managers of well-governance firms could not expect a control privilege (Comment and Schwert (1995)), implying that speculators may get benefit from correctly anticipating a higher probability of an offer. Second, management or board of well governance firms would have limited bargaining power in the event of a control privilege (Comment and Schwert (1995)), thereby attracting speculators who prefer quickly tending to in response to this event. Third, antitakeover provisions show a signal of openness to the market for shareholder rights, including sharing information with investors. Thus, when individual firm governance is changed, investors should change their investment decisions and behaviors. This paper wants to examine whether investor sentiment for individual firm is affected by the change of corporate governance.

Hypothesis I: *Investor sentiment for individual firm was affected by the change of*
corporate governance.

2.4 Stock Return and Firm Characteristics

Core, Guay, and Rusticus (2006) investigate that weak governance does not cause weak stock returns and market reactions to acquisition and capital expenditure announcements does not cause return differences. Baker and Wurgler (2006) have suggested that hard-to-value and difficult-to-arbitrage stocks are easily affected by investor sentiment. They also discover that when beginning-of-period proxies for investor sentiment are low, hard-to-value and difficult-to-arbitrage firms will be underpriced in the subsequent period. In other words, if the sentiment is high, these

firms will have relatively overpriced in the subsequent period. Thus, we can use the sentiment beta to find relationship between change of sentiment and stock returns. Then, when controlling firm's characteristics, the second hypothesis of this paper would examine whether the difference of corporate governance results in the difference of sentiment beta of the firms.

Hypothesis II: *The sentiment beta difference of the firms is affected by corporate governance when controlling other characteristics of firms.*

III. Data and Research Methodology

3.1 Data Source

3.1.1. Corporate Governance

Our sample period is from 1990 to 2005, and sample firms are collected from the Investor Responsibility Research Center (IRRC).[3] All of our firms have a G-index that compiles twenty four antitakeover provisions about shareholder rights and investor protection[4]. Because the IRRC publishes data periodically, we have restrictions on G-index. Thus, we should assume that every firm in our sample from the last edition to the next edition takes the same and constant antitakeover provisions. In other words, if the year that IRRC do not provide the G-index, we use the data provided by IRRC at prior period to replace for the unavailable data.

According to Kole and Lehn (1997) and Booth, Cornett, and Tehranian (2002), they discover that mangers are monitored by regulations which help reduce principal problem in some regulated industries. For example, financial and utilities firms are traditionally heavily regulated. Due to these regulations, their financial structure, accounting standards, and regulatory requirement are different from other industries, hence we exclude financial firms (SIC 4000-4999) and utilities (SIC 6000-6999) from our sample. And other characteristics of firms are obtained from Compustat.

3.1.2. Sentiment Index

Investor sentiment index can be divided into two types. One is direct sentiment index and the other is indirect sentiment index. Direct sentiment index is a questionnaire in which the institutes or researchers design some questions about

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[3] The IRRC has published six editions: September 1990, July 1993, July 1995, February 1998, November 1999, January 2002, January 2004, and January 2006. Each edition includes information between 1,400 to 1,800 firms, with some variation in the list of included firms from edition to edition.
[4] Gompers, Ishii, and Metrick (2003) mainly collect antitakeover provisions where firms are published on the New York Stock Exchange (NYSE), America Stock Exchange (AMEX), and NASDAQ.

someone's view of the future. For example, which would you say is more likely--that in the country as a whole we'll have continuous good times during the next five years or so, or that we will have periods of widespread unemployment or depression, or what? (a question of index of consumer confidence, Reuters / University of Michigan Surveys of Consumers). Indirect sentiment index is computed indicators that can capture sentiment, such as the number of initial public offering (Baker and Wurgler, 2000), or the composite index (Brown and Cliff, 2005, Baker and Wurgler, 2006). Sias et al (2001), Lee et al (1991), Neal and Wheatley (1998), use the close-end fund discount as a sentiment measure. Lemmon and Portniaguina (2006), Qiu and Welch (2005) use the University of Michigan Consumer Confidence Index as the sentiment measure. Glushkov (2006) uses sentiment beta to measure investor sentiment.

Our sentiment index is from Wurgler's website. Stock returns and capitalization are obtained from Center for Research in Security Prices (CRSP) monthly database. Our return and firm's characteristic data are matched with the firms of G-index included.

3.2 Research Methodology

Sentiment index[5] is composed of several indicators, including closed-end fund discount[6], dividend premium[7], turnover rate of NYSE, the numbers and returns of initial public offering, and equity issues over total new issues (Baker and Wurgler (2007)). They argue that their sentiment index can capture major fluctuations in sentiment and interpret stock returns. We can find out the variation of stock returns

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[5] Brown and Cliff (2004) have analogical result. They use two surveys, trading volume variables, type of trade, derivatives, and others, including close-end fund discount, return and number of IPO, FUNDFLOW, FUNDCASH, to composite sentiment index.

[6] The closed-end fund discount is the difference between the market price and net asset value of a fund's actual security holdings. Because closed-end funds usually are hold by retail investors, many researchers use it as an individual investor sentiment indicator.

[7] Dividend premium is defined as the difference between the average market-to-book-value ratios of dividend payers and nonpayers.

when sentiment changes one basis point by sentiment beta. This concept is like the market beta. It indicates the slope of the market model and measures the price sensitivity of the market return. In other words, if a market beta is above one, the return of firms will exceed one percent when the market return varies one percentage and vice versa. Shefrin and Statman (1994) develop a behavioral asset pricing model (BAPM) as a correspondent to the capital asset pricing model (CAPM) in traditional finance. In their BAPM model, due to the noise trader's interaction with rational traders, the expected return of stocks are determined by behavior beta. Glushkov (2006) defines the sentiment beta as a sensitivity of stock returns to sentiment change. Sentiment beta can be estimated by the regression coefficient of individual stock returns on the sentiment changes. The estimation methodology is based on the following model:

$$R_{i,t} =$$

$$\alpha_{i,t} + \beta_{1,i}RMRF_t + \beta_{2,i}SMB_t + \beta_{3,i}HML_t + \beta_{4,i}Momentum_t + \beta_{5,i}\Delta sentindex_t + \varepsilon_{i,t}$$

where $R_{i,t}$ is the excess return of the stock i at time t. $RMRF_t$ is value-weighted market return minus the risk-free rate at the month t. SMB_t (small minus big), HML_t (high minus low), and $Momentum_t$ are returns on zero-investment mimicking portfolio at month t to capture size, book to market, and momentum effects[8]. $\Delta sentindex$ is downloaded from Wurgler's website[9]. Following Fama and French (1993) and Glushkov (2006), the regression coefficients for every firm are estimated using a five-year window rolled forward every three months, i.e., if the first estimated

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[8] RMRF, HML, SMB are the Fama-French (1993) three factor model and their data can obtained from French's website. The estimation procedure of momentum follows Carhart (1997).

[9] Baker and Wurgler(2006) build two sentiment index: sentiment index, and orthogonalized sentiment index. The latter use the residuals of sentiment variables to estimate sentiment index in order to remove business cycle. In addition, $\Delta sentindex$ is estimated by the change of sentiment variables by principal component analysis. The correlation coefficient between $\Delta sentindex$ and orthogonalized $\Delta sentindex$ is 0.84. We also use the latter to estimate sentiment beta. And we get the similar result on sentiment beta.

period is January 1990 to December 1994, the second estimated period will be April 1990 to March 1995. This procedure can alleviate the possibility of the look-ahead bias. (Glushkov, 2006)

Baker and Wurgler (2006) find that investor sentiment has large effects on security that are highly subjective and difficult to arbitrage. They find that if securities with several of the characteristics mentioned below, the subsequent returns will be affected by prior investor sentiment. The characteristics are small-sized, young, high volatility, unprofitable, non-dividend-paying, extreme-growth, and distressed. In order to test the relationship among investor sentiment, corporate governance, and firm characteristics, we use Original Least Squares (OLS) to estimate the relation of the parameters. The regression model is:

$$\beta_{sentiment_{i;t}} = \alpha_t + \beta_1 AGE_{i,t} + \beta_2 \sigma_{i,t-1} + \beta_3 SIZE_{i,t-1} + \beta_4 EARNING_{i,t-1} +$$

$$\beta_5 DIVIDEND_{i,t-1} + \beta_6 G\&D_{i,t-1} + \beta_7 G_{i,t} + \beta_8 D_1 + \beta_9 D_2 + \epsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

AGE is the numbers of years since the firm's first appearance on CRSP. *SIGMA* is the standard deviation of monthly returns over the 12 months ending in June of year. *SIZE* is the logarithm of the market capitalization. *EARNING, DIVIDEND, G&D* is a variable to measure the profitability, the situation of paying dividend, and growth opportunity or distressed crisis. D_1 and D_2 are our dummy variables for profitability and dividend policy, respectively. *G* is the governance index by GIM.

We match the sentiment beta with firm characteristics and G-index. Using GIM's terminology, we refer to the portfolio with the strongest shareholder rights (G≦5) as the "Democracy" set, and refer to the portfolio with the weakest shareholder rights (G≧14) as the "Dictatorship" set. From 5 to 14 of G-index, the governance management becomes from democracy to dictatorship. Because high sentiment beta indicates that the return is increased by the change of sentiment and low sentiment

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beta indicates the return is decreased by the change of sentiment, we use the absolute value of sentiment beta to observe the degrees of change of sentiment. Additionally, as governance does not directly influence sentiment, we use the six characteristics affected by sentiment from Baker and Wurgler (2006) to find the indirect effect. We divide every characteristic into three equal parts to examine the relation between sentiment beta and firm characteristic under the same level of governance and the relation between sentiment beta and governance of the same level of firm characteristic, i.e., when G=5, there are three level of the same characteristics: the top 33%, the middle 33% and the last of 33%.

3.3 Variable Definition and Data Descriptive Statistics

3.3.1 Sentiment Beta

We use the equation (1) to estimate sentiment beta for every firm included in the G-index at time t. We follow Glushkov (2006) to use five year window rolled every three month so there are at least 59 month returns to be used to estimate sentiment beta at the estimated period. Thus, there are 1,926 firms which are matched G-index with sentiment beta in our sample.

3.3.2 Governance Index

Takeovers and takeover threats are our concern of corporate governance in this paper. Jensen (1989) and Scharfstein (1988) also shows that takeover address principal problems. Consequently, using more antitakeover provisions will restrict the shareholder's right. We use the G-index made by Gompers, Ishii, and Metrick (2003) to be our measure of corporate governance. They take 24 antitakeover provisions in five groups: Delay, Voting, Protection, Other and state laws. If the firms take one of twenty four provisions, G-index of the firms will be added one point and the manager curtails the shareholder's rights.

3.3.3 Firm Characteristics

Because daily and monthly data on CRSP begin from 1925, *AGE* is computed from 1925 to the nearest month in our sample period. *SIZE* is the market capitalization, defined as the price multiplied by the number of shares outstanding, and is matched to monthly return from June of year t through June of year t+1. *SIGMA* is the standard deviation of monthly return over the 12 months ending in June of year *t*. If there are at least nine returns available to estimate it, *SIGMA* is then matched to monthly returns from July of year *t* through June of year *t* + 1. While historical anecdote does not identify stock volatility itself as a salient characteristic, prior work argues that it is likely to be a good proxy for the difficulty of both valuation and arbitrage.

EARNING characteristics include the return on equity. Earnings (*E*) is income before extraordinary items (Item 18) plus income statement deferred taxes (Item 50) minus preferred dividends (Item 19), if earnings are positive; book equity (BE) is shareholders equity (Item 60) plus balance sheet deferred taxes (Item 35). The profitability dummy variable $E < 0$ (D_1) takes the value one for unprofitable firms and zero for profitable firms. *DIVIDEND* characteristics include dividends to equity, which is dividends per share at the ex date (Item 26) times Compustat shares outstanding (Item 25) divided by book equity. The dividend payer dummy $D > 0$ (D_2) takes the value one for firms with positive dividends per share by the ex date. The decline noted by Fama and French (2001) in the percentage of firms that pay dividends is apparent.

Characteristics indicating growth opportunities and distress include external finance (*EXF*), is the change in assets (Item 6) minus the change in retained earnings (Item 36) divided by assets. If the values of external finance are high, it stands for high growth opportunity in firms. In other words, if the values of external finance are low (which is negative), it stands for distressed firms. Therefore, if the absolute value

of external finance is high, it indicates the firm with growth opportunity or distressed situation. According to the character of the above mentioned, we expect the absolute value of change of external finance with sentiment beta in the same direction. All explanatory variables are Winsorized each year at their 0.5 and 99.5 percentiles. Finally, following Fama and French (1992), the accounting data for fiscal years ending in calendar year $t - 1$ are matched to monthly returns from July of year t through June of year $t + 1$.

IV. Empirical Result

4.1 Summary Statistics and Relationship

<Insert Table 1 about here>

Because we use five year window rolled regressions forward every three month to estimate sentiment beta for individual stock, the first estimation period is from Sep. 1985 to Sep. 1990 and the second period is from Jan. 1986 to Jan. 1991 to match the firm recorded in the G-index. The descriptive statistics of sentiment beta estimation are shown in Panel A, Table1. In whole sample period, there are 1,926 firms with sentiment beta in every three month because this estimation procedure of sentiment beta can mitigate the possibility of a look-ahead bias (Glushkov (2006)). In the whole estimation period, the mean return of 1,926 firms is 1.4% and mean of **Δsentindex** from Wurgler's website is 0.0036. The range of sentiment beta is from -14.7625 to 27.1817.

Other descriptive statistics of full sample are shown in Panel B, Table 1. The lowest of G-index in our sample period is 2, indicating there are only two restrictions on shareholder rights. The highest of G-index is 18. The mean and standard deviation are 9.16 and 2.78, which are broadly consistent with the distribution of the G-index from 1990 to 1998. The distribution of subsample period, 1990-1999 and 2000-2005, are similar to the whole sample period. It implies that the assumption we made about the stability of changing in antitakeover provisions is reasonable. It is interesting that the lowest of G-index is concentrated on the industry of electronic components and accessories. The sample firms are almost larger, more profitable, and older than all market because firms with antitakeover provisions usually have gone public for a period of time. In addition, contrast to Panel C (from 1990 to 1999) and Panel D (from 2000 to 2005), the sigma and size are larger in the first subsample period than

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those in the second subsample period. However, the firms in 1990-1999 are more profitable and pay more dividend than firms in 2000- 2005.

<center><Insert Table 2 about here></center>

Table 2 shows the Pearson correlation coefficients between dependent and independent variables in our sample. The G and Age have been shown to be positive correlated with each other. The relationship between sentiment beta and firm characteristics, while significant, are moderate in strength and in line with Baker and Wurgler (2006). Sentiment beta is significantly moderately negatively related to G, *AGE, SIZE, DIV*, and *EARNING*. On the contrast, *SIGMA* and *G&D* are related with sentiment beta in the same directions in all sample periods. Detailed descriptions about other variables are shown in Table 1 and Table 2.

4.2 Regression Analysis

<center><Insert Table 3 about here></center>

As can be seen in Table 3, we replicate the GIM return results and show that the return results hold for our subsample of the GIM data. In the first panel, we replicate GIM Table VI, which follows a trading strategy that takes a long position in a value-weighted portfolio of democracy firms ($G \leq 5$) and takes a short position in a value-weighted portfolio of dictatorship firms ($G \geq 14$). This hedge portfolio[10] earns excess return of 71 basis points per month from 1990 to 1999. The second panel is that we estimate four-factor regressions of value-weighted monthly returns for a trading strategy based on G-index. Following GIM (2003), the independent variables are Fama and French three factors. Momentum follows the procedure of Carhart (1997). Although the returns for this subsample are slightly larger than the original results, they are significant and statistically indistinguishable from GIM's results.

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[10] This portfolio are reset in September 1990, July 1993, July 1995, and February 1998 because the IRRC does not publish data every year, and the abnormal return of this portfolio is about 8.5 percent per year.

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We interpret a significantly positive estimate of β_7 as evidence of an association between the strength of shareholder rights and sentiment index in the equation (1).

<Insert Table 4 about here>

Regression results of the equation (1) are presented in Table 4. Panel A shows the results for full sample, Panel B and Panel C show the results for restricted samples that contain the 1990s and early of the 2000s. In these three panels, the regression coefficients of *G* are all positive and statistically significant under controlling firm characteristics. These results are broadly consistent with the hypothesis that investor sentiment for individual firm (sentiment beta) is affected by the change of corporate governance. Additionally, this result reveals that firms of the same characteristics with different governance have different effect on sentiment beta, i.e. the sentiment beta difference of firms is because of the difference in governance. As a result of, governance has the powerful explanation in sentiment beta. Investor will tend to open their mind toward securities with stronger shareholder rights because of openness signal to investor or higher arbitrage opportunity.

When controlling corporate governance, several sorts of characteristics are negative statistically significant with sentiment beta, including, *AGE, SIZE*, and *DIVIEND*. *G&D* is positive statistically significant with sentiment beta. The two dummy variables are both statistically significant with sentiment beta, which implies the extreme situation of earnings and dividend that fluctuates with the sentiment beta. The exception is only *SIGMA* in our full sample period. In 1990-1999, Changes of Sigma with the sentiment beta in the same direction is in tune with Baker and Wurgler (2006).

With the result of equation (1), sentiment beta indeed changes with corporate governance. Using six characteristics from Baker and Wurgler (2006) as a proxy we find the transition influence. We divide data equally to three parts to examine the

relationship between sentiment beta and firm characteristics under other things being equaled[11].

There are two discussions in our sample. One is that sentiment beta of those firms which are easily affected by sentiment is larger because of more restrictions on shareholder rights (more dictatorship).

<Insert Figure 1 about here>

It can be seen from Figure 1 that the relationships between governance and sentiment beta on the first one-third and the last one-third in every panel are from 1990 to 2005, i.e. the youngest and the oldest, the smallest and the largest and so on. In this period, sentiment beta becomes gradually larger with the use of more shareholder restrictions under small stocks, young stocks, unprofitable stocks, and extreme growth and distressed stocks. Additionally, in Table 5 the result of the t test shows a significant effect of the difference of democracy and dictatorship on characteristics. *AGE, SIZE*, and *EARNING*, are negative statistically significantly on the last one-third but *G&D* is positive statistically significantly on the first one-third. This result is compatible with Baker and Wurgler (2006).

<Insert Table 5 about here>

On the contrary, the other discussion is that sentiment beta of those firms which are not easily affected by sentiment is larger because of fewer restrictions on shareholder rights (more democracy). In Panel D of Figure 1, we can observe that mean of sentiment beta of those firms which pay more dividend is becoming larger from the dictatorship set to democracy set, with a t-statistic of 2.43. Firms with fewer restrictions display higher levels of trading activity, private information flow, and information about future earnings in stock prices (Ferreira and Laux (2007)) implying that investor sentiment will be affected through finding of private information. No

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[11] The two critical points are on Appendix A.

significant trend is uncovered between governance and sentiment beta when using Sigma to examine the relationship from 1990-2005.

<Insert Figure 2 about here>

The second situation is also discovered on *AGE, Dividend*, and *G&D* in Figure 2 (the sample period is 1990-1999). Sentiment beta becomes larger from the more restrictions on shareholder rights to fewer ones with a t-statistic of 6.33, 2.74, and 0.11, respectively. Why the sentiment betas of old stocks, paying-dividend stocks, and *G&D* stocks in the democracy set are larger than those in the dictatorship set?

According to Charkravarty (2001) and Hartzell and Starks (2003), institutional investors actively collect and trade on private information. Piotroski and Roulstone (2004) find that institutional trading is associated positively with idiosyncratic volatility. There is a connection between antitakeover provisions and institutions' decision. (Bethel, Liebeskind, and Opler (1998)) Additionally, fewer antitakeover provisions can increase the probability of a takeover and reduce the probability of insiders' and managers' controlling to contribute to the incentives of speculation and collecting private information (Ambrose and Megginson (1992), Comment and Schwert (1995), and Ferreira and Laux (2007)). Ferreira and Laux (2007) show that firms with fewer antitakeover provisions have higher level non-governance risk, unsystematic risk. Sentiment beta is defined as the sensitivity of individual stock returns to sentiment change. Risk of individual sentiment beta belongs to unsystematic risk. Therefore, higher sentiment beta in democracy set is consistent with Ferreira and Laux (2007). In other words, governance leads to the difference of sentiment betas between the democracy set and the dictatorship set in old stocks, paying-dividend stocks, and *G&D* stocks. This result is consistent with our hypothesis.

<Insert Figure 3 about here>

It can be seen in the Figure 3, we could find that *AGE* seems to be close to the hypothesis from Baker and Wurgler (2006), with a t-statistic of 2.03. Nevertheless, we do not find any clear trend in other characteristics.

<Insert Table 6 about here>

Furthermore, we clean the sign of sentiment beta by its absolute value and rerun the regression for equation (1) to robust our result. As in the Table 6, changes of firm characteristics with the sentiment beta coincide well with Baker and Wurgler (2006) in 1990-2005. Separately, the coefficient of *G*, *SIGMA,* and *G&D* are positively significant with t-statistics of 2.29, 65.04, and 3.21. This result shows that *G*, *SIGMA*, and *G&D* become larger while sentiment beta increases. *AGE, DIVIDEND*, *SIZE*, and *EARNING* are negatively significant with t-statistics of -13.5, -3.39, -11.76, and -1.87, respectively, which imply that *AGE, DIVIDEND, SIZE*, and *EARNING* become smaller while sentiment beta decreases. These result not only provides evidence that firms with several characteristics do affect on investor sentiment but also support our hypothesis that governance difference indeed has effect on investor sentiment. In other words, firm characteristics and G-index have powerful influences on absolute sentiment differences whether sentiment beta is positive or negative.

In addition, we also have similar results in subperiod of 1990-1999 and 2000-2005. G-index and sentiment beta are statistically significant with a t-statistic of 3.45 and 2.16 in the two subperiod samples, respectively. Other firm characteristics and sentiment beta almost are statistically significant and fluctuate as well as our expectation. These result robust our hypothesis again.

V. Conclusion

In this paper, we examine two related hypotheses. The first hypothesis is whether investor sentiment for individual firm is affected by the change of corporate governance. The second hypothesis is that whether sentiment betas of the firms are affected by corporate governance when controlling for all other characteristics. Evidence on the validity of these hypotheses is important for investors' portfolio allocation because it helps in understanding what types of stocks are most pronouncedly affected by sentiment, of which firm characteristics play a determining role thus resulted in the potential implications.

In order to examine these hypotheses, we use the sentiment index from Baker and Wurgler (2006) and follow Glushkow (2006) to estimate sentiment for individual firms recorded in G-index. This paper provides evidence of firm characteristics being easily affected by sentiment is consistent with Baker and Wurgler (2006) and also indicates one's investment decision would be affected by governance because well-governance is in favor of openness and arbitrage signal than bad-governance. Additionally, we divide data equally to three parts to examine the relation between sentiment beta and firm characteristic under the same procedure. The sentiment beta of the last 33% of sample increase gradually from the democracy set to dictatorship set on *AGE, SIZE*, and *EARNING*, further, the sentiment beta of the top 33% increase gradually from the democracy set to dictatorship set on *G&D* in 1990-2005 is resulted from their characteristics with hard-to-value and difficult-to-arbitrage. Because their specific characteristics would lead to higher trading cost and difficulty to short their stock (Amihud and Mendelsohn (1986), Baker and Wurgler (2006)), this result is in accordance with previous studies. The sentiment beta of the top 33% decrease gradually from the democracy set to dictatorship set could be the result of

idiosyncratic risk, which can be mitigated by portfolio diversification. As individual risk can be diversified under diversification, this result also indicates that well-governance firms with specific characteristics will only be affected by fundamental economic factors. It also supports our second hypothesis that the difference of sentiment beta of the firms is affected by corporate governance after controlling other characteristics of firms. Further, we use absolute value of sentiment beta to rerun the equation (1). The result corresponding with our first hypothesis and Baker and Wurgler (2006) provides a robustness support.

We do not find clear trend in 2000-2005. It may be that lower sentiment in this period induces the sentiment effect or the existence of long run relation between variables. We can extend our sample period in 2000-2008 or 1980-1990 to search if the similar result exists. Moreover, to consider more other sentiment indicators or firm characteristics are also necessary in finding out similar result to support our consequence.
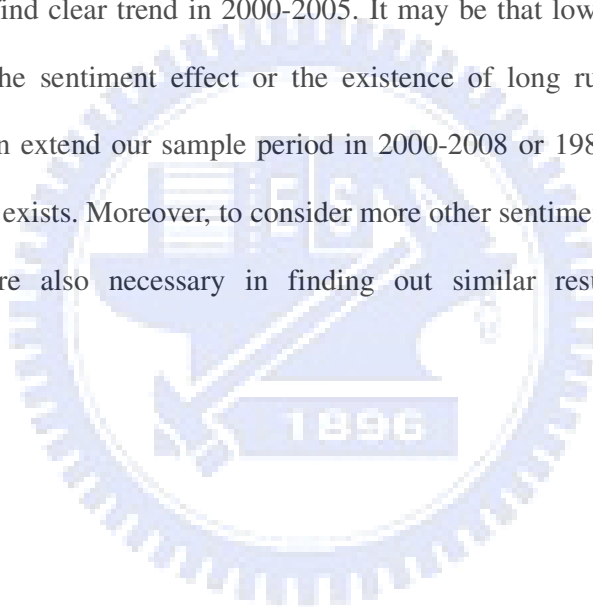
Appendix

The critical points of every firm characteristic are below.

	1990-2005		1990-1999		2000-2005	
	Over this critical point is the top 33%	**Less this critical point is the last of 33%**	**Over this critical point is the top 33%**	**Less this critical is the last of 33%**	**Over this critical point is the top 33%**	**Less this critical is the last of 33%**
Age (Years)	30.17	17.5	29.17	19.33	31.25	15.33
Size ($M)	2025.47	545.06	1735.55	440.88	2564.13	705.21
Sigma(%)	11.9160	7.8900	10.0476	6.9492	14.4332	9.7338
Dividend (%)	3.5588	0	4.9482	2.4936	2.4462	0
Earning (%)	17.0646	10.3231	14.0303	7.2796	17.8204	9.4279
|G&D| (%)	9.5119	3.6361	9.5294	3.6446	9.4767	3.6042

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Table 1 Summary Statistics

This table provides the descriptive statistics of our independent variables and dependent variables. Panel A shows the estimation data of sentiment beta, including RMRF, SMB, HML, Momentum, and Δsentindex. Panel B consists of 127814 observations, where the sample period is from 1990 to 2005. Panel C and Panel D consists of 71759 and 56055 observations from 1990 to 1999 and 2000 to 2005, respectively. G is the governance index by GIM (2003). Accounting data from the fiscal year ending in t-1 are matched to monthly returns from July of year t through June of year t+1. All variables of firm character are winsorized at 99.5 and 0.5 percent.

Panel A: Sentiment Beta Estimation (1985~2005)

Variable	N	Mean	Std Dev	Minimum	Maximum
Return (%)	337507	1.40	14.98	-98.30	937.05
RMRF	244	0.67	4.46	-23.13	12.43
SMB	244	0.05	3.51	-16.70	22.18
HML	244	0.33	3.22	-12.80	13.80
MOMENTUM	244	0.47	6.15	-53.13	22.80
Δsentindex	244	0.0036	0.54	-4.60	3.48

Panel B: 1990-2005

Variable	N	Mean	Std Dev	Minimum	Maximum
G	127814	9.16373	2.782429	2	18
Age(years)	127814	27.2045	17.79785	5.08	76.75
Size ($M)	127814	3,893.70	8,310.59	8.83	55,098.14
Sigma (%)	127814	11.0202	5.8691	2.9885	48.2446
DIVIDEND (%)	127814	3.781654	21.70534	0	1782.31
EARNING (%)	127814	6.765778	72.03324	-676.738	396.1491
G&D (%)	127814	5.518138	26.87357	-59.4669	1099.6
│G&D│(%)	127814	10.28955	25.43153	0	1099.6
Sentiment Beta	127814	-0.15814	2.504034	-14.7625	27.18167
Dividend>0	74802	5.926426	27.9911	0.0156	1782.31
Earning>0	74802	17.53324	26.76272	0	396.1491

Variable	N	Mean	Std Dev	Minimum	Maximum
G	71759	9.158015	2.890765	2	18
Age(years)	71759	27.38395	17.2716	5.08	74
Size ($M)	71759	3,241.08	7,415.83	8.8337	55,098.144
Sigma (%)	71759	9.2522	4.3228	2.9885	40.82446
DIVIDEND(%)	71759	3.949609	11.17958	0	830.7692
EARNING (%)	71759	7.375708	49.72423	-676.738	396.1491
G&D (%)	71759	5.309172	18.69463	-59.4669	1099.6
│G&D│(%)	71759	9.762866	16.80363	0	1099.6
Sentiment Beta	71759	0.101112	2.488418	-11.306	27.18167
Dividend>0	46460	5.574431	13.45093	0.0156	830.7692
Earning>0	46460	16.2381	25.48949	0	396.1491

Panel D: 2000-2005

Variable	N	Mean	Std Dev	Minimum	Maximum
G	56055	9.171046	2.637262	2	18
Age(years)	56055	26.97478	18.44724	5.08	76.75
Size ($M)	56055	4,729.164	9,264.855	8.8337	55,098.144
Sigma (%)	56055	13.2834	6.7453	2.9885	48.2446
DIVIDEND (%)	56055	3.566646	30.23509	0	1782.31
EARNING (%)	56055	5.984974	93.08638	-676.738	396.1491
G&D (%)	56055	5.785646	34.6293	-59.4669	1099.6
│G&D│(%)	56055	10.9638	33.35349	0	1099.6
Sentiment Beta	56055	-0.49001	2.484736	-14.7625	15.22837
Dividend>0	28342	6.503438	42.0807	0.0399	1782.31
Earning>0	28342	19.65631	28.60193	0.0606	396.1491

Table 2 Pearson correlation coefficients

Panel A provides the correlations between independent and dependent variables from 1990 to 2005. Panel B and Panel C provide the correlations coefficients from 1990 to 1999 and 2000 to 2005, respectively. The p-values are showed in parenthesis.

Panel A : 1990-2005

	G	Age	Size	Sigma	Dividend	Earning	G&D	Sentiment beta
G	1.0000							
Age	0.2710	1.0000						
	(<.0001)							
Size	0.0217	0.3284	1.0000					
	(<.0001)	(<.0001)						
Sigma	-0.1480	-0.2549	-0.1343	1.0000				
	(<.0001)	(<.0001)	(<.0001)					
Dividend	0.0373	0.1145	0.0629	-0.0840	1.0000			
	(<.0001)	(<.0001)	(<.0001)	(<.0001)				
Earning	0.0244	0.0315	0.0521	-0.1543	0.0776	1.0000		
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)			
G&D	0.0029	-0.0424	0.0132	0.0420	-0.0211	-0.0413	1.0000	
	(0.3015)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)		
Sentiment Beta	-0.0200	-0.0767	-0.0110	0.0225	-0.0225	-0.0237	0.0111	1.0000
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	

Panel B: 1990-1999

	G	Age	Size	Sigma	Dividend	Earning	G&D	Sentiment beta
G	1.0000							
Age	0.2594	1.0000						
	(<.0001)							
Size	0.0226	0.3452	1.0000					
	(<.0001)	(<.0001)						
Sigma	-0.1741	-0.3014	-0.1955	1.0000				
	(<.0001)	(<.0001)	(<.0001)					
Dividend	0.0414	0.1347	0.1167	-0.1575	1.0000			
	(<.0001)	(<.0001)	(<.0001)	(<.0001)				
Earning	0.0389	0.0834	0.0766	-0.1562	0.1019	1.0000		
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)			
G&D	-0.0163	-0.0883	0.0105	0.0406	-0.0371	-0.0689	1.0000	
	(<.0001)	(<.0001)	(0.0049)	(<.0001)	(<.0001)	(<.0001)		
Sentiment Beta	-0.0244	-0.0692	-0.0287	0.1382	-0.0608	-0.0352	-0.0024	1.0000
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.5284)	

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Panel C: 2000-2005

	G	Age	Size	Sigma	Dividend	Earning	G&D	Sentiment beta
G	1.0000							
Age	0.2882	1.0000						
	(<.0001)							
Size	0.0209	0.3188	1.0000					
	(<.0001)	(<.0001)						
Sigma	-0.1551	-0.2491	-0.1646	1.0000				
	(<.0001)	(<.0001)	(<.0001)					
Dividend	0.0430	0.1210	0.0493	-0.0676	1.0000			
	(<.0001)	(<.0001)	(<.0001)	(<.0001)				
Earning	0.0162	0.00002	0.0419	-0.1634	0.0725	1.0000		
	(0.0001)	(0.9966)	(<.0001)	(<.0001)	(<.0001)			
G&D	0.0177	-0.0152	0.0139	0.0420	-0.0172	-0.0310	1.0000	
	(<.0001)	(0.0003)	(0.001)	(<.0001)	(<.0001)	(<.0001)		
Sentiment Beta	-0.0134	-0.0900	0.0284	0.0113	-0.0100	-0.0201	0.0233	1.0000
	(0.0015)	(<.0001)	(<.0001)	(0.0077)	(0.018)	(<.0001)	(<.0001)	

Table 3 Monthly Abnormal Return from September 1990 to December 1999

We estimate four-factor regressions of value-weighted monthly returns for a trading strategy based on G-index. Following Gompers, Ishii, and Metrick (2003), their trading strategy is taking a long position in a value-weighted portfolio of Democracy firms ($G \leq 5$) and taking a short position in a value-weighted portfolio of Dictatorship firms ($G \geq 14$). The dependent variables are Fama and French three factors. Momentum follows the procedure of Carhart (1997). The first regression represents the original results in GIM. The second regression is our replication using the same restrictions as in GIM.*, **, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

	Intercept	RMRF	SMB	HML	Momentum
	Original Results by GIM(2003), Table VI				
Coefficient	0.71***	-0.04	-0.22**	-0.55***	-0.01
Standard error	0.26	0.07	0.09	0.10	0.07
t-statistic	2.73	-0.57	-2.44	-5.50	-0.14
	Replication of GIM Result for Full Sample				
Coefficient	0.75**	-0.12	-0.30**	-0.61***	0.11
Standard error	0.37	0.11	0.13	0.15	0.09
t-statistic	2.01	-1.13	-2.26	-3.95	1.19

Table 4 Regression Results (1)

$$\beta_{sentiment_{i,t}} = \alpha_t + \beta_1 AGE_{i,t} + \beta_2 \sigma_{i,t-1} + \beta_3 SIZE_{i,t-1} + \beta_4 EARNING_{i,t-1} + \beta_5 DIVIDEND_{i,t-1} + \beta_6 G\&D_{i,t-1} + \beta_7 G_{i,t} + \beta_8 D_1 + \beta_9 D_2 + \epsilon_{i,t}$$

We use firm characteristics from Baker and Wurgler (2006), G-index form GIM (2003) and follow Glushkov (2006) to estimate sentiment beta. The first panel is our main sample from 1990 to 2005. The second and third panels are subsample period. *, **, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively. The R square of three panels is 1.11%, 2.95%, and 1.02%.

	Intercept	G	Age	Dividend	Sigma	| G&D |	Size	Earning	d_1	d_2	obs
					Panel A: 1990-2005						
Coefficients	0.6147***	0.0056**	-0.0086***	-0.0010***	-1.2190***	0.0011***	-0.0217***	-0.0001	0.1452***	-0.3126***	127814
Standard error	0.0726	0.0026	0.0005	0.0003	0.1346	0.0003	0.0049	0.0001	0.0256	0.0186	
t-statistic	8.47	2.12	-19.01	-3.13	-9.05	4.06	-4.46	-1.17	5.68	-16.8	
					Panel B: 1990-1999						
Coefficients	-1.0384***	0.0091***	-0.0049***	-0.0069***	5.6323***	-0.00059	0.0695***	0.0005***	0.1733***	-0.4370***	71759
Standard error	0.0996	0.0033	0.0006	0.0008	0.2454	0.0006	0.0066	0.0002	0.0340	0.0263	
t-statistic	-10.43	2.74	-8.05	-8.13	22.96	-1.07	10.52	2.65	5.09	-16.62	
					Panel C: 2000-2005						
Coefficients	0.0824	0.0144***	-0.0115***	0.0003	-0.9581***	0.0015***	-0.0121*	-0.0007***	-0.1106***	-0.1864***	56055
Standard error	0.1148	0.0042	0.0007	0.0004	0.1755	0.0003	0.0074	0.0001	0.0388	0.0266	
t-statistic	0.72	3.45	-17.26	0.83	-5.46	4.85	-1.64	-5.22	-2.85	-7.01	

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Table 5 T test of Democracy and Dictatorship

We use the absolute value of sentiment beta to observe degree of change of sentiment and divide every characteristic into three equal parts to examine the relation between sentiment beta and firm characteristic under the same level of governance or the relation between sentiment beta and governance under the same level of firm characteristic, i.e. when G=5, there are three level under characteristic, including the top of 33%, middle of 33%, the last of 33%. We use t test to examine whether sentiment beta of democracy set is larger than sentiment beta of dictatorship set. The p-values are showed in parenthesis. *, **, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively. The p-values are showed in parenthesis.

	1990-2005		1990-2005		1990-2005
Age		**Sigma**		**Earning**	
The top 33%	1.09	**The top 33%**	0.47	**The top 33%**	1.85*
	(0.2771)		(0.6409)		(0.064)
Middle	-3.36***	**Middle**	6.81***	**Middle**	0.72
	(0.0008)		(<.0001)		(0.469)
The last 33%	-2.56**	**The last 33%**	-0.84	**The last 33%**	-6.18***
	(0.0107)		(0.4015)		(<.0001)
Size		**Dividend**		**G&D**	
The top 33%	0.78	**The top 33%**	2.43**	**The top 33%**	6.77***
	(0.4367)		(0.015)		(<.0001)
Middle	-0.12	**Middle**	4.72***	**Middle**	0.17
	(0.9027)		(<.0001)		(0.8618)
The last 33%	-5.62***	**The last 33%**	6.39***	**The last 33%**	-1.55
	(<.0001)		(<.0001)		(0.1209)

	1990-1999		1990-1999		1990-1999
Age		**Sigma**		**Earning**	
The top 33%	6.33***	**The top 33%**	3.52***	**The top 33%**	1.65*
	(<.0001)		(0.0004)		(0.0997)
Middle	-4.95***	**Middle**	4.1***	**Middle**	3.98***
	(<.0001)		(<.0001)		(<.0001)
The last 33%	4.02***	**The last 33%**	-2.45**	**The last 33%**	6.07***
	(<.0001)		(0.0142)		(<.0001)
Size		**Dividend**		**G&D**	
The top 33%	0.45	**The top 33%**	2.74***	**The top 33%**	8.65***
	(0.6499)		(-0.0062)		(<.0001)
Middle	2.25**	**Middle**	-4.03***	**Middle**	-1.48
	(0.0247)		(<.0001)		(0.1395)
The last 33%	-7.22***	**The last 33%**	4.32***	**The last 33%**	-0.11
	(<.0001)		(<.0001)		(0.9088)

	2000-2005			2000-2005			2000-2005
Age			**Sigma**			**Earning**	
The top 33%	-3.04***		**The top 33%**	-4.66***		**The top 33%**	-3.58***
	(0.0024)			(<.0001)			(0.0004)
Middle	-1		**Middle**	-1.93*		**Middle**	-0.02
	(0.3198)			(0.0535)			(0.9805)
The last 33%	2.03**		**The last 33%**	4.12***		**The last 33%**	-1.02
	(0.0441)			(<.0001)			(0.3088)
Size			**Dividend**			**G&D**	
The top 33%	-0.37		**The top 33%**	0.46		**The top 33%**	-3.08***
	(0.7128)			(0.6483)			(0.0021)
Middle	-1.67*		**Middle**	3.87***		**Middle**	1.89*
	(0.0954)			(0.0001)			(0.0588)
The last 33%	-2.44**		**The last 33%**	-0.47		**The last 33%**	-3.36***
	(0.0147)			(0.6374)			(0.0008)

Table 6 Regression Results (2)

$$|\beta_{\text{sentiment}_{i,t}}| = \alpha_t + \beta_1 \text{AGE}_{i,t} + \beta_2 \sigma_{i,t-1} + \beta_3 \text{SIZE}_{i,t-1} + \beta_4 \text{EARNING}_{i,t-1} + \beta_5 \text{DIVIDEND}_{i,t-1} + \beta_6 \text{G\&D}_{i,t-1} + \beta_7 \text{G}_{i,t} + \beta_8 \text{D}_1 + \beta_9 \text{D}_2 + \epsilon_{i,t}$$

We use firm characteristics from Baker and Wurgler (2006), G-index form GIM (2003) and follow Glushkov (2006) to estimate sentiment beta. We use the absolute value of sentiment beta to examine the relationship between firm characteristics and corporate governance. The first panel is our main sample from 1990 to 2005. The second and third panels are subsample period. *, **, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively. The R square of three panels is 10.09%, 13.12%, and 8.86%.

	Intercept	G	Age	Dividend	Sigma	|G&D|	Size	Earning	d_1	d_2	obs
					Panel A: 1990-2005						
Coefficients	2.0955***	0.0039**	-0.0039***	-0.0007***	5.6460***	0.000641	-0.0369***	-0.0001*	0.01098	-0.4891***	127814
Standard error	0.0468	0.00169	0.0003	0.0002	0.0868	0.000178	0.0031	0.00007	0.01647	0.012	
t-statistic	44.77	2.29	-13.5	-3.39	65.04	3.61	-11.76	-1.87	0.67	-40.76	
					Panel B: 1990-1999						
Coefficients	1.4724***	0.0074***	-0.0028***	-0.0016***	9.3962***	0.0022***	-0.0065	-0.0007***	-0.1533***	-0.6296***	71759
Standard error	0.0643	0.0021	0.0004	0.0005	0.1585	0.0004	0.0043	0.0001	0.0220	0.0170	
t-statistic	22.9	3.45	-7.23	-2.93	59.3	6.15	-1.52	-5.18	-6.98	-37.08	
					Panel C: 2000-2005						
Coefficients	1.7155***	0.0059**	-0.0046***	-0.0005**	5.1729***	1.36	-0.0203***	0.0001	0.1065***	-0.3335***	56055
Standard error	0.0748	0.0027	0.0004	0.0002	0.1143	0.000205	0.0048	8.53E-05	0.0252	0.0173	
t-statistic	22.95	2.16	-10.68	-2.33	45.27	0.01	-4.21	1.25	4.22	-19.27	

Figure 1 Sentiment Beta and Governance of the firm characteristics (1990-2005)
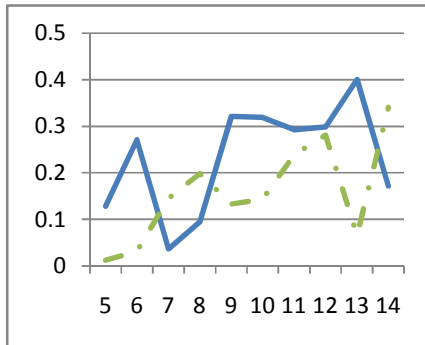
Panel A Size
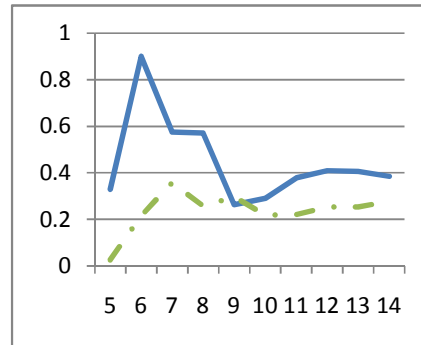
Panel B Age
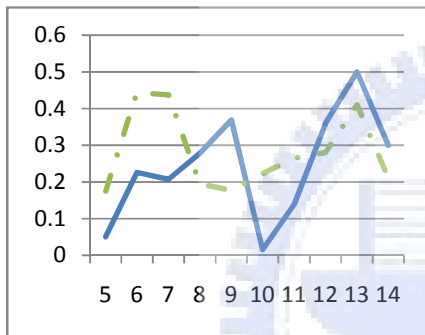
Panel C Sigma
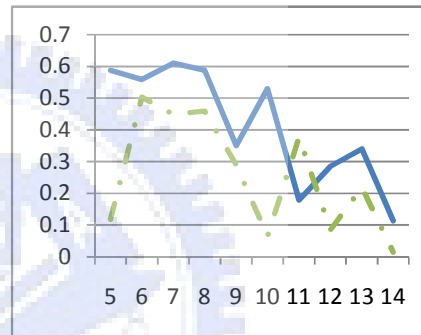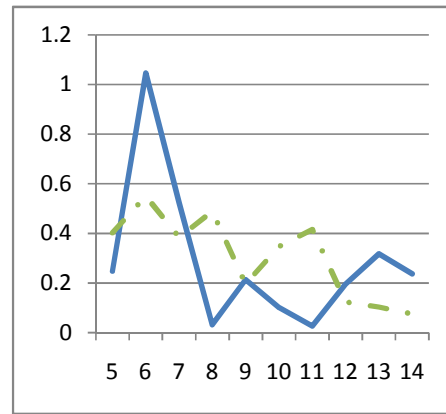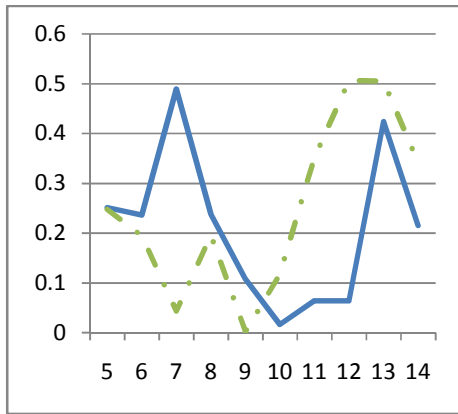

Panel D Dividend
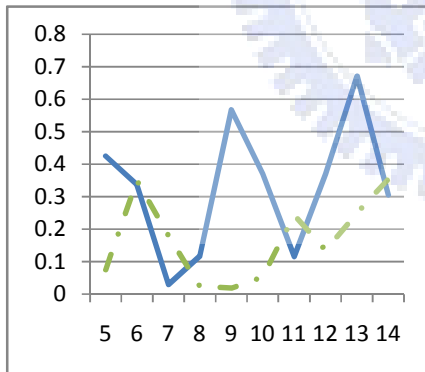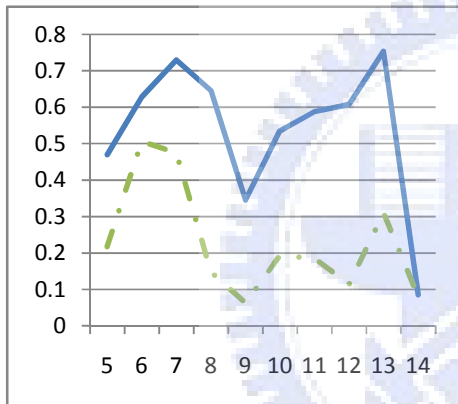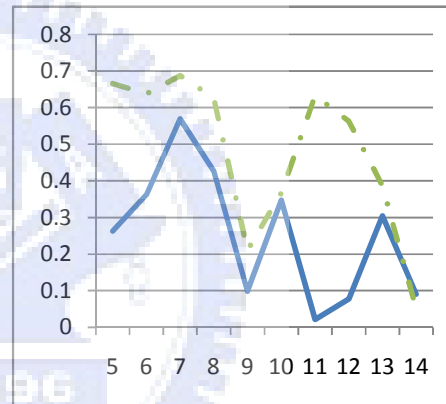

Panel E Earning
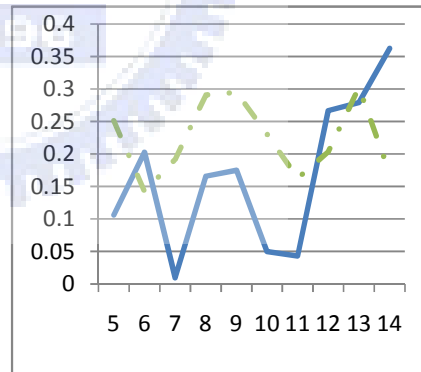
Panel F G&D

We divide every characteristic into three equal parts to examine the relation between sentiment beta and firm characteristic under the same level of governance or the relation between sentiment beta and governance under the same level of firm characteristic, i.e. when G=5, there are three level under characteristics, including the top of 33%, and the last of 33%. The dotted line is the bottom 33% and the other is the top 33%.'

Figure 2 Sentiment Beta and Governance of the firm characteristics (1990-1999)

Panel A Size

Panel B Age
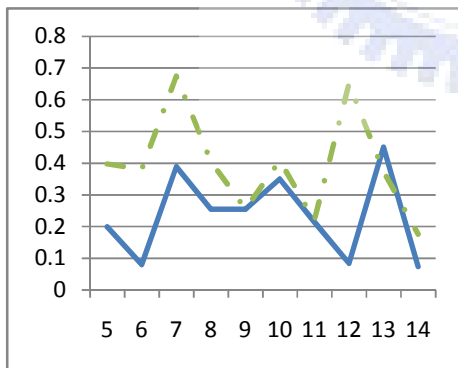
Panel C Sigma
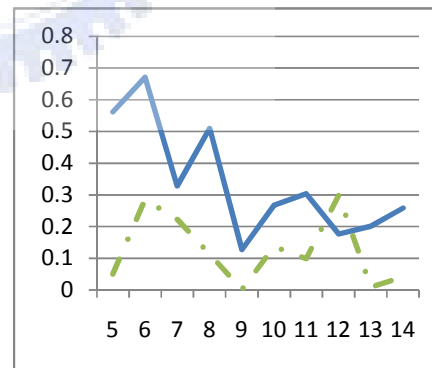
Panel D Dividend

Panel E Earning

Panel F G&D

Figure 3 Sentiment Beta and Governance of the firm characteristics (2000-2005)

Panel A Size

Panel B Age

Panel C Sigma

Panel D Dividend

Panel E Earning

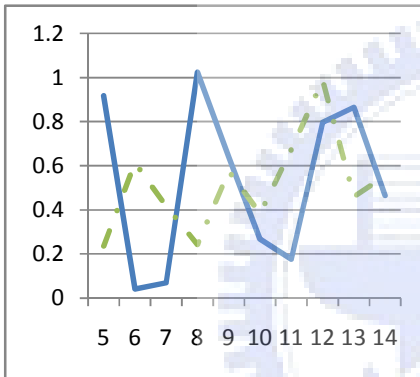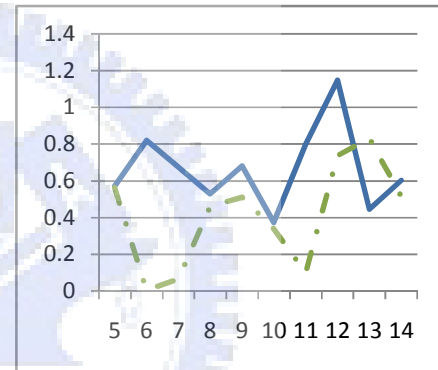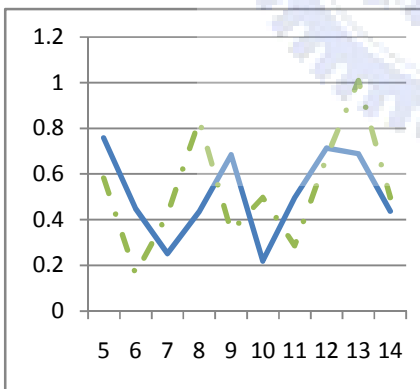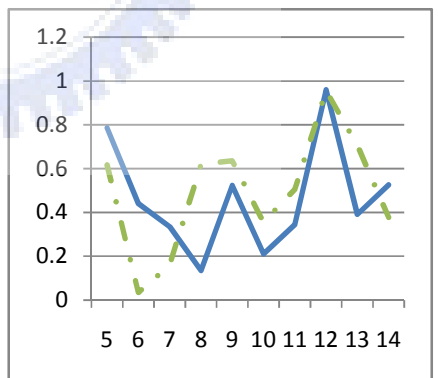Panel F G&D