Does Corporate Governance Matter, Evidence from Earnings Management Practices in Singapore

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Abstract

This paper addresses two questions. First, do good corporate governance practices add values to company or does it lead to higher stock returns in Singapore? Second, does poorly governed listed company in SGX tend to manage their earnings by using discretionary accruals? Following the approach of Gompers et al. (2003), we formed two portfolios consisting of well-governed and poorly governed companies. Well governed companies are able to maintain a higher return relative to poorly governed companies. I also look at the firm valuation from the adoption of corporate governance practices. Our result shows a positive relationship between firm valuation and corporate governance, we find Tobin's Q to be significantly positively related to corporate governance. However, corporate governance does not necessarily improve firm's performance. Finally, I also demonstrate that firm's adoption of stringent corporate governance practices is associated with the magnitude of discretionary accruals, and limits discretion in earning management. Among different categories as prescribed by OECD, firms with best practices in the "Disclosure and transparency" category are associated with lower level of discretionary accruals.

Contents:

Listed Tables:

Acknowledgement:

This thesis arose in part out of years of study and research that has been done since I came to Dept. Finance of Singapore Management University. By that time, I have worked with a great number of people whose contributions in different ways make they deserved special mention. It is a pleasure to convey my gratitude to them in this acknowledgement.

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Chapter 1

Introduction

Promoted by corporate scandals like Enron and Bernard Madoff in the United States, Marconi in the United Kingdom, and China Aviation Oil in Singapore, corporate governance has received a lot of attention from the government and the investors. OECD stated that "The approach was not that these were problems associated with energy traders or telecommunications firms, but that they were systemic. These cases provide important lessons to government bodies as well as international regulators. Governments have taken actions to measure the corporate governance practices and tried to restore the public confidence in corporate governance.

Literatures has documented that a positive relationship existed between firm values and corporate governance practices in United States, and some European countries. However, little has been done to look at the empirical evidences in Singapore. With the corporate governance index created and updated annually by Prof Jeremy Goh and his team in Singapore, we finally have a benchmark to measure the governance of Singapore listed firms and it provides solid data for serious research.

This paper is consisted of 4 parts. In the first part, all the stocks traded on SGX Exchange are categorized according to their corporate governance scores. Following

the method developed by Gompers(2003), Two investment portfolios are built; the "well governed" portfolio is to buy the firms in the top quartile of index, while the "poor governed" portfolio is to long the firms in the bottom quartile of index. The sample period was set from 2006 to 2009. In this period we can found that the value of well governed portfolio is significantly above the poor governed portfolio in most of the months. The monthly returns are calculated and given that if we could synthesize an zero-investment portfolio by long the well governed portfolio and short the poor governed ones, we could made a average 2.4% yearly abnormal return in the sampling period.

Following the first part, the second part looked into whether this abnormal positive return actually contributes a higher firm valuation eventually to well-governed companies. Among different firm valuation variables, Tobin's Q showed that a higher level of corporate governance practices is associated with higher firm values. However, firm performance variables like net profit margin and return on equity are not able to produce similar results like firm valuation.

On the third part, I want to look at the earning management activities reflected by companies with different levels of governance. Following Teoh et al (1998), I estimated the discretionary accruals from the modified Jones' model. While the result in some extent is mixed, we could identify several corporate governance factors that influence the size of discretionary accruals. Among all those aspects,

"Disclosure and Transparency" in 2007 and 2008 has been proved associated with smaller size of discretionary accruals used by senior managers.

The paper is organized as following. Chapter 2 reviews previous literatures on corporate governance, earnings management and portfolio analysis. Chapter 3 presents the 4 hypotheses. Data description and sample selection are in chapter 4. Chapter 5 explains the methodology employed in this paper as well. Chapter 6 provides results and analysis. Chapter 7 concludes.

Chapter 2

Literature Review

2.1 Corporate Governance

In public equity market, corporate need to raise funds from investors to operate and expand their business, investors have the funds but also require the managers' talents and specialized skills to operate a modern firm and generate returns for their investments. Because of the separation of ownership and control, the managers and investors make a compromise that the shareholders are willing to sacrifice some of their rights in hopes of the managers will maximize their wealth, and the managers' benefits will be subject to the board which represents the shareholders. Under this framework, corporate governance is considered as an agency problem resulted from in modern corporations. In reality, the person who run the firm have incentives to compensate themselves more than they deserved, or take high risk projects which will damage long term value of the firm. Although in certain situations this agency problem may not be the primary concerns, it is still a widely established fact. The object of good corporate governance is to solve this agency problem by maintaining the ideal balance of power, thus maximize the long term performance of the firm.

In a broad way, business author Gabrielle O'Donovan defines corporate governance

as "an internal system encompassing policies, processes and people, which serve the needs of shareholders and other stakeholders, by directing and controlling management activities with good business savvy, objectivity, accountability and integrity. Sound corporate governance is reliant on external marketplace commitment and legislation, plus a healthy board culture which safeguards policies and processes".[1] He went on to explain that the quality of internal governance could influence the share price as well as the cost of capital. Quality is determined by how process and policies are built and implemented. Unlike the external market environment, the internal environment is constantly in control of senior managers and the board members. With good governance inside the company, it can differ themselves from other competitors.

There is a wild range of literatures documented the relationship between corporate governance and firm performance. Core, Holthausen, Larcker (1999) found that firms with weaker governance structures have bigger agency problems, thus CEOs in firms poorly governed will receive bigger compensation. They also found that firms with greater agency problems constantly perform worse than well governed firms.

In another historical paper by Gompers, ishii, and Metrick (2003), it stated that firms with strong shareholder rights (termed *Democracies*) are found to have better operating performance than firms with weak shareholder rights (termed *Dictatorships*). Additionally, a hedged portfolio that long the Democracies and short

the Dictatorships gained an abnormal return of approximately 8.5% per year over the period from 1990 to 1999. In Europe, Bauer, Gunster, and Otten (2003) analyzed the relationship between different corporate governance standards and stock return, firm value, and operating performance for UK and countries in economic and monetary union (EMU) of the European Union. In UK they found economically large excess returns to a zero-investment portfolio replicated from Gompers' paper. In the EMU, the excess return is smaller; instead they found a significant relationship between governance and firm value.

The most obvious explanation is that managers are more likely to behave properly under a well governed firm. The shareholder may take into consideration this fact. Sonda (2001) found when a board is consisted of more experienced independent members, the board could more effectively reduce the manipulation of income by managers in firms than those boards with outside board members have less or no experience. Larger board, the importance of the ownership stakes in the firm held by non-executive directors are also proved to be associated with less income decreasing earnings management. The same evidences are also found in Taiwan stock market.

Besides the above factors, one of the other theories explained the phenomenon in term of lower external financing cost brought by good corporate governance. Bhojraj and Sengupta (2003) found that well governed firms with extensive outside monitoring are rewarded with lower financing rate and higher bond ratings. On the

other hand, Pagano, Panetta, and Zingales (1995) found that it would be very difficult for firms in Italy without a proper governance system to obtain external financing or have to bear a higher rate.

Relatively few studies on this issue have been investigated in Singapore market. I intend to try my best to contribute to this gap. Prof Goh has developed a corporate governance index for all listed companies on Singapore Exchange (SGX), which make it feasible to look at the actual effects of corporate governance on firm's value, performance as well as earning management activities in Singapore.

2.2 Portfolio Analysis, Firm Value and Operating Performance

I would like to structure this piece of research by three parts. First, I will discuss previous literature on researching the association between long term equity return of a zero investment strategy based on corporate governance. This part will be followed by another piece focusing on the relationship between corporate governance and firm value. Finally I will look at the impact on firm operating performance.

2.2.1 Portfolio analysis

Two important and closely related literatures in United States are Gompers et al. (2003) and Drobetz et al. (2003). Taking a long run horizon from 1990 to 1999, Gompers analyzed the impact of 24 corporate governance provisions on about 1,500 stock returns. He constructed the corporate governance index as a proxy for the balance of power between shareholders and managers. Firms in the highest deciles of index are considered "Dictatorship Portfolio", referring to the highest management power and firms in the bottom deciles are classified as "Democracy Portfolio" with weakest management power. They examine the returns to holding a long position in the dictatorship portfolio and a short position in democracy portfolio. This zero-investment hedged position yields an average annual return of about 8.5% in the sample period.

In Germany Drobetz chose the time frame from 1998 to 2002, due to the limited data in governance. They assume constant ratings, and build their corporate governance index by sending out questionnaires and analyzed the answers. Though the methodology is different, Drobetz was able to generate reliable data and the result shows an amazing annual excess return of 16.4% with a long-short strategy.

In EMU as a whole and UK, Bauer, Gunster and Otten built portfolios following Gompers' methodology, the same strategy yields an annual return of 2.1% for the EMU and 7.1% for UK from Jan 1997 till July 2002, without any adjustments.

In this paper, I will investigate into the Singapore market following the above methods and study how the corporate governance affects the firms listed in Singapore.

2.2.2 Firm value

The empirical literature on the relationship between firm value and corporate governance usually compare firms with various internal governance practices, or countries with different governance standards. The firs type of research includes Drobetz et al.(2003) for Germany, Gompers et al.(2003) for the US, de Jong et al.(2001) for the Netherlands, Bauer et al.(2003) for UK and Black(2001) for Russia. These studies generally found a positive pattern between corporate governance and firm value

La Portal et al. (2001) investigate into the second type, and proved that firms in developed countries, or countries with better governance standards tend to have a higher valuation.

Combined the above two studies, I want to replicate their research in Singapore, based on the newly developed corporate governance index.

2.2.3 Firm operating performance

Compared to the other two subjects, there are rather few empirical literatures which covered this area. Most studies are focusing on one or few certain governance characteristics, like the board's average age. The proxies for firm operating performance are generally profitability ratios.

Here, again, I would follow Gompers et al.(2003), their data results show a positive impact of corporate governance on Net Profit Margin and Return on Equity in the United States.

2.3 Earning Management and Discretionary Accrual

Earning management is referring to accounting manipulations that may follow accounting polices, but clearly deviate from providing accurate, relevant and reliable information to outside shareholders.

2.3.1 Motivations for earning management

According to Healy and Wahlen (1999), "earnings management" occurs when managers use judgment in financial reporting and in structuring transactions to alter

financial reports to either mislead some stakeholders about the underlying economic performance of a company or influence contractual outcomes that depend on reported accounting numbers." Listed firms in Singapore follow certain accounting rules, which are not a set of solid rules but give managers some freedom to adjust their figures to reveal their true financial situation. However, some managers make use of this privilege and adjust the figures to a favorable level to obtain unjustified benefits for the company or themselves. In practice, earning management usually involves manipulating revenue, profit, receivables upwards to a favorable level. Aggressive earnings management is a form of fraud and differ from reporting error.

Literatures investigating into earning management are usually event studies conditional on certain events like bond offering and initial public offerings. Earning management can be either increasing or decreasing the earning, all subject to the manager's discretion.

Teoh, Welch and Wong (1998b) found significantly positive earnings manipulation for firms before seasoned public offerings as an attempt to achieve better pricing in the stock market. And they also found such firms usually went through a period of poor stock performance which lasts for three years. Shivakumar (2000) found a similar result, and he goes further to look at whether the investors and outsiders are being tricked by artificially high earnings, his results showed a negative relation between pre-announcement abnormal accruals and the stock price reaction to the

offering announcements. In other words, the investors are aware of the manager's earning management practices and respond to their actions correspondingly. Caton, Chiyachantana, Chua and Goh (2008) found significant earnings management efforts by issuers to window dress their firms' performance in the year of the seasoned bond offering, while their behavior are not found to have material impacts on their ratings given by rating agencies.

Unlike the seasoned bond offering, the research on initial public offering generated mixed results. As a pioneer in this area, Teoh Welch and Wong (1998) recorded aggressive earnings management for firms that are undertaking IPOs. Ball and Shivakumar (2008) attacked Teoh's research on US data by suggesting six possible weaknesses in the argument. They argue that the discretionary accruals estimated in Teoh et al.'s paper is too large to be credible, the accruals estimated from working capital and IPO proceedings are biased. Therefore Ball et al. concluded from UK market data that publicly listed companies on average provide higher quality financial reporting than private companies, IPO firms in UK have no systematic earning inflation and sometimes even conservative. They also believed that a set of mechanisms is in place to enforce IPO firms to produce high quality financial reporting, such as reputation effects, cost of capital effects, and monitoring by internal and external auditors, boards, analysts, rating agencies, the press, litigators and the other parties.

Some literatures documented the earning management efforts trying to decrease the earnings. Gong, Louis, and Sun (2008) found a significant negative earning manipulation before a possible merger or a post-merger lawsuit, this may reveals that the managers want to lower the share price to facilitate their open market purchase.

Earning management can serve the purposes of maximizing bonus or regulatory concerns. Healy (1985) analyzed different typical compensation contracts; they found a strong connection between accruals and the bonus scheme applied to the managers. Managers are more likely to choose income-decreasing accruals when their bonus plan upper or lower bounds are binding, and income-increasing accruals when these bounds are not binding. Guidry, Leone and Rock (1999) further support this finding by suggesting divisional heads in U.S. conglomerate managed the figures to maximize their bonus. Earning management also occurs before certain regulation reforms. Before the tax reform 1986, Gunther shows that big firms, firms with low level of debt or firms with higher management stakes produce significantly more negative accruals to take advantage of this large decrease of corporate tax. Similarly, Jones (1991) found that discretionary accruals are more income-decreasing than expected accruals during import relief investigations (e.g. tariff increases and quota reductions).

Besides earning management could bring various benefits to managers, it is also difficult to be detected by board and outside shareholders. In Watts and Zimmerman

(1978), it suggested that managers not only have incentive to manipulate earnings, but also alter its income-production decisions as the cost for government intervention becomes larger.

2.3.2 Detect the earning management

One of the earliest method using in detect earning management is simply draw the distribution of earnings before certain events. Burgstahler, Dichev looked into the cross-sectional distribution of earning changes, and found unusually low frequency of small decrease in earning changes and unusually high frequency of small increase in earning changes. This effect is more significant when the firms have gone through more years of earning increase. Two components, cash flow from operation and working capital are used to manipulate the earnings. This method is straightforward, but subject to a lack of quantitative analysis, and also it requires a large sample in order to reach a meaningful conclusion, thus not suitable for a medium size market like Singapore.

The most common method to quantitatively analyze the earning management is developed by Jones (1991). His method is to decompose total accruals to discretionary accrual and non-discretionary accrual. Most accounting decisions involve some accruals. For example, selling on credit leads to the creation of

accruals because the sale is recognized along with a receivable, even when there is no actual cash received as yet. Most accruals are a normal part of a firm's business and tend to reverse out over time. A receivable will be reversed when cash is received. The usage of accruals is in compliance with accounting principles in purpose of matching cash flow and trying to get a better economic measure of period performance than cash flows. It also provides a potential manipulating opportunity for managers to revise the accounting figures for their own interests. Jones (1991) suggested that non-discretionary is associated with changes in revenue and investment in property, plant and equipment, and not subject to managers' discretion. The critical part, discretionary accrual is subject to managers' decisions whether to include this part in the final accounting figures. Firms with high positive discretionary accruals are likely to be managing earnings upwards, while firms with low positive discretionary accruals are likely to be managing earnings downwards.

DeAngelo (1986), Healy (1985), and McNichols and Wilson (1988) first applied this idea and use discretional accruals as a proxy for earnings management activities, where they consider non-discretionary accruals a constant. Jones (1991) modified their models and relaxed the assumptions that non discretionary accruals are constant over time. Non-discretionary accruals in her model is estimated from a cross sectional regression to capture the influence from revenue changes. Dechow and Sloan (1991) further modified Jones model by adding in industry specific variables, their regression is conducted during each industry to remove the influences from

industry-specific variables. Teoh et al. (1998) went further to use discretionary current accruals, rather than total discretionary in his IPO event study.

Total accruals can be calculated from balance sheet items or simply the differences between earnings and cash flows. Hribar, Collins (2002) found potentially large measurement error in the balance sheet methods. Especially if there are corporate actions like merger & acquisition or discontinued operation, the discretionary accruals are easily inflated and leads to flawed conclusion than earning management exists when there is actually none. Kothari, Leone, and Wasley (2005) proved that if researchers could match the accruals to performance, the discretionary accruals generated would be much more reliable to estimate the level of earning management in firms.

Chapter 3

Hypothesis Development

As literatures in the US and UK proved the link between corporate governance and stock returns, and managers have incentives to manipulate earnings. Here I would like to look at firms listed on Singapore equity market. Following Gompers' research, Hypothesis 1 is as follows:

Hypothesis I: corporate governance does not cause significant impacts on firms, and bring no abnormal return in Singapore equity market.

Following bauer, Gunster and Otten's paper, In UK and EMU corporate governance can enhance firm value as well as firm operating performance. When I am looking at Singapore market, my hypothesis is organized as follows:

Hypothesis II: corporate governance does not cause significant positive impact on firm values measured by Tobin's Q Singapore equity market

Hypothesis III: corporate governance does not cause significant positive impact on firm operating performance represented by net profit margin or return on equity in Singapore equity market.

If we could prove that good corporate governance indeed bring benefits to firms like higher stock return. Next step is to explore why, corporate governance is often considered an indicator for managers' disciplines. The investor may be willing to pay a higher price for firms which have better corporate governance system in place, because they can trust the financial information given by managers.

Hypothesis IV: In Singapore equity market earning management activities will not be significantly lower when there are better corporate governance practices in place.

In the next chapter I would like to introduce the data and sample selection for my research in clarifying the above hypothesis

Chapter 4

Data and Methodology

4.1 corporate governance index compositions

To measure the companies' quality of governance we use corporate governance index released by Dept. Finance, SMU. They are based on about 200 independent criteria, which are further categorized into the following Sub-index.

1. Sub-index A: Rights of Shareholders: this sub-index evaluate whether shareholders could exert sufficient power to interfere corporate actions whenever necessary. As the OECD principles on corporate governance stated "Organizations should respect the rights of shareholders and help shareholders to exercise those rights. They can help shareholders exercise their rights by effectively communicating information that is understandable and accessible and encouraging shareholders to participate in general meetings." For instance the voting system is assessed to make sure it is in favorable for the shareholders, and shareholders should be able to file items on the agenda and counterproposal before and during the general meetings.

2. Sub-index B: Equitable treatment of Shareholders: this sub-index evaluate whether all the shareholders have been treated equally and prohibit behaviors that

would benefit certain groups of shareholders while sacrificing the others like insider trading, abusive self dealing, etc. this sub-index includes criteria like proxy voting, shareholders' participation of general meeting.

3. Sub-index C: Roles of Stakeholders in CG: the stakeholder model suggests that the purpose of the operation is to serve a wider range of stakeholders' interests than just shareholder, which would in turn ensure the long term health and benefits of the firm. This sub-index includes criteria like the interaction with suppliers, vendors and customers.

4. Sub-index D: Disclosure and Transparency: this category measures the degree to which the firm is willing to share convenient and comprehensive information with outside shareholders. The information includes financial matters and its governance characteristics. For instance, the company should releases information about its full financial statements, company structure and plans for future investment. One specific aspect we put in more emphasize is the senior managers' compensation in different forms must be clearly stated.

5. Sub-index E: Responsibilities of the Board: this category describes the purpose, authority and responsibilities of the board. Important criteria in this category includes the composition of board, the board members' profiles and qualifications, roles within different committees, and board meeting agenda.

In this paper we have over 120 criteria in total to assess one firm's corporate governance practices, covering all the sectors listed in SGX. Since the index has been complied from 2007, we are able to possess the equity market data of 2007 and 2008, which are two extremely volatile years in Singapore equity market. To explore whether sectors differ in their governance standards, we present sector average in Table 1. Clear significant sector difference in governance score is observed, so the following analysis always includes a sector adjusted result as robustness check

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4.2 Portfolio analysis by applying Fama French three factor model and Carhart momentum factor

To analyze the impact of corporate governance on equity return, all SGX listed firms are ranked on the basis of the corporate governance index; we assign the top 25% of the companies with highest corporate governance practices rating to "well governed portfolio", and the bottom 25% is labeled as "poor governed portfolio". Both of the portfolios are value weighted. We could easily synthesize a zero investment portfolio by longing the well governed group and shorting the poor governed group.

To understand the return characteristics of this zero investment portfolio, we would like to explore whether this premium can be explained by market risk and other common factors.

Here I would like to borrow the idea from Fama-French (1992, 1993) three factors model and the momentum factors developed by Jegadeesh and Titman(1993). Stock returns from the above portfolio are likely to be influenced by market risk beta, firm's market value or capitalization (size effect), book to market ratio (value effect), and the past returns (momentum effect). To account for these factors, I will employ the Carhart (1997) four factor model, which is

$$R_{LST} = \alpha + \beta_1(R_{mt} - R_f) + \beta_2 SMB_t + \beta 3 HML_t + \beta_4 MOM_t + \varepsilon_t$$

(1)

Where R_{LST} is the excess monthly return of the zero-investment portfolio, R_{mt} is the monthly return on the market portfolio and R_f is the monthly risk free interest rate obtained from Monetary Authority of Singapore (MAS). SMB_t (Small minus Big) is the monthly return on a size factor portfolio, HML_t (High minus Low) is the monthly return on a book-to-price factor mimicking portfolio based on the book-to-market ratio. MOM_t (Momentum) is the monthly return on a momentum factor portfolio.

SMB_t and HML_t portfolios are constructed following the method of Fama and French (1993). Both portfolios are formed on the firm's market capitalization at the end of June every year, and acted as control variables from July to next year June. For SMB_t, the companies with the lowest 30% of market value are defined as "Small", while the highest 30% are labeled as "Big". The return used in the regression is the return from "Small" portfolio minus "Big" Portfolio. For HML_t, the factor mimicking portfolio is constructed similarly, the top 30% with the highest book to market ratio is the "Value" portfolio, and the bottom 30% is the "Growth" portfolio, the return used in regression is to subtract the return on "Growth" from the return on "value".

MOM_t is defined according to Carhart (1997). To build MOM_t portfolio, each month we calculated the 30% of firms with the highest eleven-month returns lagged one-month as "Winner" portfolio, the 30% firms with the lowest eleven-month returns lagged one-month are included in "Loser" portfolio. Each month the return is calculated as "Winner" minus "Loser".

All the portfolios are value-weighted, exclusive of the overstated effects from stocks of small capitalization firms.

4.3 Corporate governance, Firm value and Firm performance

We use Tobin's Q as out measure of firm valuation. Tobin's Q is defined as the market value of asset divided by the replacement value of assets. The replacement value is represented by book value; the market value calculated as book values plus common shares outstanding times stock price and subtract balance sheet deferred taxes.

To evaluate the impact of corporate governance and other factors on firm valuation, I would use multivariate regression analysis. In line with Gompers et al. (2003) as well as Shin and Stulz (2000), the book value and firm age are included as control variables. According to Daines (2001) and Yermack (1996) showed that current and past performance significantly affect firm value, we also include current return on equity (ROE) and ROE in previous year to control the effect from firm performance. The equation is as below:

$$Q_{it} = \alpha + \beta_1 CG_{it} + \beta_2 BV_{it} + \beta_3 AGE_{it} + \beta_4 ROE_{it} + \beta_5 ROE_{it-1} + \varepsilon_{it}$$

(2)

Where CG represents the logarithm of corporate governance score released by SMU, BV is the logarithm of the book value of assets and AGE is the logarithm of firm's age in years, started from the first IPO date or the first trading day. ROE represents

the firm's return on equity in current and previous year.

The sector adjusted version of equation (2) is also shown as below:

$$Q_{it} = \alpha + \beta_1 CG_{it} + \beta_2 BV_{it} + \beta_3 AGE_{it} + \beta_4 ROE_{it} + \beta_5 ROE_{it-1} + \beta_6 SD_{it} + \varepsilon_{it} \quad (3)$$

Where SD_{it} represents a vector of sector dummy variables, according to the sector categories described in table 1.

In terms of evaluating the impact of corporate governance on firm performance, here I would like to propose two proxies of firm operation efficiencies to measure the impact of corporate governance. The first proxy is Net Profit Margin (NPM) in model 1, the equation is as below:

$$NPM_{it} = \alpha + \beta_1 CG_{it} + \beta_2 BM_{it} + \varepsilon_{it}$$

(4)

The second proxy in model 2 is Return on Equity

$$ROE_{it} = \alpha + \beta_1 CG_{it} + \beta_2 BM_{it} + \varepsilon \quad (5)$$

Where CG is the logarithm of firm's corporate governance rating, BM is the logarithm of the book-to-market ratio.

The sector-adjusted versions of equation (4) & (5) are shown below:

$$NPM_{it} = \alpha + \beta_1 CG_{it} + \beta_2 BM_{it} + \beta_3 SD_{it} + \varepsilon_{it} \tag{6}$$

$$ROE_{it} = \alpha + \beta_1 CG_{it} + \beta_2 BM_{it} + \beta_3 SD_{it} + \varepsilon \tag{7}$$

4.4 Discretionary Accruals

Dechow, Sloan and Sweeney (1995) tested several models of accrual management and found out the "modified Jones model" detect the earning managements with the most power. Cross section version of the modified Jones model was also found useful in Bartov, Gul and Tsui's paper in 2001. Although its power has been questioned by Ball & Shivakumar in their several papers, it remains one of the most popular models for estimating accrual behavior. Besides normal modified Jones model, here I would like to apply an additional modified model proposed by Cornett, marcus, Saunders and Tehranian in 2006, and an "augmented Jones model" raised by Cohen, Dey and Lys in 2004 to improve the robustness of the result.

Discretionary or abnormal accrual is the difference between actual accrual and predictive accruals, which is estimated by a regression formula.

The modified Jones model estimates normal accruals from the equation:

$$\frac{TA_{it}}{Assets_{it-1}} = \alpha \frac{1}{Assets_{it-1}} + \beta_1 \frac{\Delta Sales_{it}}{Assets_{it-1}} + \beta_2 \frac{PPE_{it-1}}{Assets_{it-1}}$$

(8)

Where TA_{it} is the total accrual for firm i in the year t, $Assets_{it-1}$ is the total assets for firm i in the year t, $\Delta Sales_{it}$ is the change in sales for firm i in year t and PPE_{it-1} is the property, plant, equipment for firm i in year t. The regression is estimated within each sector category to adjust for sectors.

Total accruals can be estimated as:

$$TA_i = \Delta Current\_Non\_Cash\_Assets - \Delta Current\_Liabilities$$
$$+ \Delta Long\_Term\_Debt\_in\_Current\_Liabilites - Depreciation$$

(9)

Or

$$TA_i = Net\_Income - Cash\_From\_Operation$$

(10)

Equation (10) is used for robustness check, so here I would like to show the calculation of discretionary accruals by using equation (9).

$$DA_{it} = \frac{TA_{it}}{Assets_{it-1}} - (\hat{\alpha} \frac{1}{Assets_{it-1}} + \hat{\beta}_1 \frac{\Delta Sales_{it}}{Assets_{it-1}} + \hat{\beta}_2 \frac{PPE_{it-1}}{Assets_{it-1}})$$

(11)

Where the coefficients in the bracket is estimated from equation (8)

Large value of discretionary accrual is usually considered as indicative of earning management activities. Because discretionary accruals can be used to both increase or decrease accruals, in some contexts (e.g., Klein, 2002 or Cohen, Dey, and Lys, 2004) the absolute value of discretionary accruals is considered the best measure to determine whether earning management occurs and the size of earnings management. Also Bergstresser and Philippon in 2004 study absolute accruals, they show that the late 1990s was characterized by a strong secular increase in accruals. I also found that in 2007 the discretionary accruals are mostly positive and in 2008 they are mostly negative. The size of absolute value of discretionary accruals may provide a more straightforward view on the earning management activities in the market.

4.5 Other data

The sample here consisted of all firms listed on Singapore Exchange (SGX) from July, 2001 to Oct, 2009. In calculating discretionary accruals, the sample size is all firms listed from July 2006 to Oct 2009. Balance sheet data are from Compustat Global. Corporate governance index and sub-index figures are from Prof Jeremy Goh of Singapore Management University. This corporate governance index is relatively stable, and the fact that the firms are neither in IPO stage or financial

distress make Ball and Shivakumar's concern less of an issue here.

The firm valuation is represented by Tobin's Q, defined as the market value of the firm divided by the replacement value of assets. The firm operating performance is represented by net profit margin and return on equity.

Chapter 5

Result:

5.1 Corporate Governance and portfolio Returns

Relied on the corporate governance index synthesized and released by Singapore Management University, I built two portfolios based on the top 25% and the bottom 25% well governed companies. The portfolios are value weighted, as well as all the control variables.

Using monthly valuation, a clear pattern has emerged that the well governed portfolio are always valued at a higher price than poor governed companies. The average premium for the portfolio consisted of top 25% well governed companies is 5% compared to the portfolio of bottom 25%.

From graph 1 we could also tell that the well governed portfolio is valued significantly higher than the poor governed portfolio in average from July, 2006 to Oct, 2009.

Inset Figure 1 Here

Without any adjustments of market risk, this zero-investment could produce a monthly abnormal positive return of 0.2% from July, 2006 to Oct, 2009, equivalent to a 2.4% annually.

Inset Table 2 Here

To further analyze this abnormal return, Fama French three factor models as well as the momentum factor are applied. The results of estimating equation (1) are shown in table 1. The first row presents the regression estimates to market return and alpha, the significance lies in the coefficient of market return, which reveals the zero-investment portfolio still contains some market risk exposures. The second row and the third row include the other two factors from Fama-French model. The final row contains another variable to describe the momentum existed in the market.

We can see from the table, a large part of this zero-investment corporate governance directed portfolio performance is attributed to size and value effect, the momentum effect is not found to significantly affect the portfolio performance.

Inset Table 3 Here

5.2 Corporate Governance and Firm Value

If better governed companies can lead to higher stock return, in the long run, it should eventually leads to higher firm valuation. So here we are investigating to which extent the corporate governance practices has affected the firm valuation in the equity market.

Table 2 shows the cross section regression result from year 2008. Alpha represents the residual value after controlling for common valuation variables. Then we have very interesting result, we can always harvest a positive significant alpha unless we throw in the corporate governance factor. The positive coefficient of corporate governance also shows that a firm's valuation revealed by Tobin's Q is significantly related to the firm's corporate governance practices.

Inset Table 5 Here

Table 3 shows the cross section regression result from year 2007. I am able to find significant patterns which are in line with the year 2008 result. From the market we know that these two year are extremely volatile year and the firm's valuation may change dramatically. The same pattern found in different years reveals a consistent

positive impact of corporate governance on firm's valuation in Singapore market. In other words, after controlling for various variables, the well governed companies are valued at a significantly high level compared to the poor governed firms, in both 2007 and 2008.

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┌─────────────────────────────────────┐
│                                      │
│           Inset Table 4 Here         │
│                                      │
└─────────────────────────────────────┘
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All the regression are sector adjusted by using sector dummies to avoid contaminated by sector characteristics described in table 1.

5.3 Corporate Governance and Firm Performance

As shown by Jensen and Meckling (1976), better governed firms might have more efficient operations, resulting in a higher expected future cash flow stream and possibly higher firm performance. We estimate the regressions for 2007 and 2008 respectively; t statistics are presented in the following table.

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┌─────────────────────────────────────┐
│                                      │
│           Inset Table 6 Here         │
│                                      │
└─────────────────────────────────────┘
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As table 6 shows, from both models in both years, I was unable to find a consistent significant relationship between corporate governance and firm efficiency. The inclusion of corporate governance scores does not provide solid support for firm performance. This result is in contrary to my expectation.

5.4 Corporate Governance and Discretionary Accrual

Table 7 show the descriptive statistics for discretionary accruals calculated in both the year 2007 and 2008. From the statistics we can clearly see that the discretionary accruals in year 2007 are mostly positive while the discretionary accruals in 2008 are mostly negative. It is reasonable because in good year firms tend to sell more on credit which leads to higher total accruals, and managers have incentive to manage income upwards to match the general market performance. In bad year the investors can be tolerable with lower level of income so it should be a good time to cut down income and realize the income in the future to make beautiful growth figures.

Inset Table 7 Here

Table 8 presents results on the regression of discretionary accruals to control

variables and different aspects of corporate governance from sub-index A to sub-index D in year 2007. Discretionary accruals in the table are estimated from modified Jones model. In regression 1, the dependent variable is the discretionary accrual as a percent of sales. In regression 2 the independent variables are the same except that the dependent variable is the size of the discretionary accruals as a percent of asset. Though most of the coefficient is not significant, still the coefficient is negative and their existence could decrease the size of discretionary accruals.

Inset Table 8 Here

Table 9 presents results on the regression of discretionary accruals to control variables and different aspects of corporate governance from sub-index A to sub-index D in year 2008. The regression setup is following the table 8. we found significant relationship between "Disclosure and Transparency" and the size of discretionary, however there is also unexpected result that sub-index B has a positive relationship with the size of discretionary accruals, which will be diminished in the following panel data regression shown in table 10

Inset Table 9 Here

In the full sample dataset regression, although we found that most of the

discretionary accruals (DCA) are positive in 2007, and negative in 2008. In the full sample the most coefficients of sub-index are negative which will help decreasing the size of discretionary accruals. From the model 2, we can tell that especially "The Right of Stakeholders" and "Disclosure and Transparency" are among the most significant variables.

The most significant factor is "The Right of Shareholders"; Disclosure and transparency has the largest negative coefficient, in the firm having more disclosure and transparent information we can observe smaller size of DCA. Therefore both factors play important roles in reducing the size of DCA and deserved future attentions.

However, there is one exception which is the equitable treatment of shareholder, it significantly increases the size of DCA in year 2008, and this effect disappears in full sample test. I would like to discuss in the following discussion section.

Chapter 6

Discussion

In this study we examined the corporate governance practices in Singapore market. The relationship between good corporate governance and firm value, firm performance and share price was investigated based on the corporate governance index developed by Prof Jeremy Goh and his team. Though the year span is only limited to 2007 and 2008, it still gives us a chance to conduct cross-sectional study on Singapore listed firms.

Here we documented the significant and positive return generated by buying stock with a top 25% corporate governance score and selling stock in the bottom 25%. The results from UK, Europe and The States are also shown the similar results. While we use tobin's q as a proxy for firm value, better corporate governance are associated with higher firm value, probably because the stock price premium reflected.

The other interesting phenomenon is the relationship between the corporate governance and the size of discretionary accruals. The higher the overall corporate governance score, the smaller size of discretionary accruals in the same year was detected. To break further, "The Right of Shareholders" contributes the most to this effect. The reason can be explained in the way that the managers under more

stringent governance framework tend to be more careful when using discretionary accrual to present firm performance, thus reflecting a more real financial picture of the firm. Other factors like value effect and size effect also play important parts in this effect.

Overall, the impacts of corporate governance in Singapore market is in line with the other markets like UK and Europe, revealing the essence of corporate governance in the economical activities.

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Appendix I

Top 10% well governed companies listed on SGX (Year 2008)

Tiong Woon Corp Holding Ltd	Okp Holdings Ltd
Richland Group Ltd	Sembcorp Industries Ltd
Tai Sin Electric Cables Manufacturer Ltd	StarHub Ltd
Pteris Global Ltd	United Engineers Ltd
CNA Group Ltd	Idt Holdings (Singapore) Ltd
HLN Technologies Ltd	InnoTek Ltd
Yellow Pages (Singapore) Ltd	Hyflux Ltd
Europtronic Group Ltd	Olam International Ltd
CWT Ltd	Best World International Ltd
Mobileone Ltd	Singapore Press Holdings Ltd
PSC Corp Ltd	Tuan Sing Holdings Ltd
Keppel Telecommunications & Transportation Ltd	First Resources Ltd
Sembcorp Marine Ltd	Fj Benjamin Holdings Ltd
Asia Pacific Breweries Ltd	Singapore Technologies Engineering Ltd
Straits Asia Resources	Singapore Airlines Ltd
Banyan Tree Holdings Ltd	Sia Engineering Co Ltd
Qian Hu Corp Ltd	Keppel Corp Ltd
Singapore Petroleum Co Ltd	Indofood Agri Resources Ltd
Neptune Orient Lines Ltd	Comfortdelgro Corporation Ltd
SMRT Corp Ltd	Singapore Post Ltd
Singapore Telecommunications Ltd	Cerebos Pacific Ltd

Top 10% poorly governed companies listed on SGX (Year 2008)

Advance Modules Group Ltd	China Video Surveillance Ltd
Ban Leong Technologies Ltd	General Magnetics Ltd
Advance SCT Ltd	Nti International Ltd
Lorenzo International Ltd	Broadway Industrial Group Ltd
Singapore Food Industries Ltd	Khong Guan Flour Milling Ltd
Magnus Energy Group	Aspial Corporation Ltd
Cse Global Ltd	Guthrie Gts Ltd
Creative Technology Ltd	Texchem Pack Holdings Singapore Ltd
STATS ChipPAC Ltd	Casa Holdings Ltd
Jacks International Ltd	Compact Metal Industries Ltd
Contel Corp Ltd	Chemical Industries (Far East) Ltd
Huan Hsin Holdings Ltd	Hotel Grand Central Ltd
Mediaring Ltd	Digiland International Ltd
Singatronics Ltd	A-Sonic Aerospace Ltd
Time Watch Investments Ltd	Vibropower Corp Ltd
Internet Technology Group Ltd	Enviro-Hub Holding
Cacola Furniture International Limited	Htl International Holdings Ltd
Enporis Greenz Limited	Zagro Asia Ltd
Ban Joo & Co Ltd	Zhonghui Holdings Ltd
Rickers Maritime	Chuan Soon Huat Industrial Group Ltd

Top 10% well governed companies listed on SGX (Year 2007)

Hour Glass Ltd	Darco Water Technologies Ltd
Delong Holdings Ltd	Singapore Airport Terminal Services Ltd
Tuan Sing Holdings Ltd	Keppel Corp Ltd
HL Global Enterprises Limited	Fu Yu Manufacturing Ltd
Petra Foods Ltd	Sembcorp Marine Ltd
Singapore Food Industries Ltd	Cerebos Pacific Ltd
Advance SCT Ltd	Cougar Logistics Corp
United Engineers Ltd	Advanced Holdings Ltd
Multi-Chem Ltd	A-Sonic Aerospace Ltd
Azeus Systems Holdings Ltd	Penguin International Limited
Adroit Innovations Ltd	Sembcorp Industries Ltd
Sia Engineering Co Ltd	Bbr Holdings (S) Ltd
Wbl Corp Ltd	Neptune Orient Lines Ltd
Singapore Technologies Engineering Ltd	Singapore Telecommunications Ltd
Singapore Post Ltd	Europtronic Group Ltd
Ossia International Ltd	SP Chemicals Ltd
Cosco Corporation (Singapore) Ltd	Ferrochina Ltd
Portek International Ltd	SMRT Corp Ltd
Tat Seng Packaging Group Ltd	Singapore Petroleum Co Ltd

Top 10% poorly governed companies listed on SGX (Year 2007)

Vibropower Corp Ltd	Dragon Group Intl Ltd
Viz Branz Ltd	Eastgate Technology Ltd
Yangzijiang Shipbuilding Holdings Ltd	Liang Huat Aluminium Ltd
STATS ChipPAC Ltd	Challenger Technologies Ltd
China Printing & Dyeing Holding Ltd	Shanghai Turbo Enterprises Ltd
Creative Technology Ltd	China Hongcheng Holdings Ltd
Eastern Holdings Ltd	Chemical Industries (Far East) Ltd
Pan-United Corp Ltd	Casa Holdings Ltd
Ban Leong Technologies Ltd	China Auto Corp Ltd
Abterra Ltd	L. C. Development Ltd
Ban Joo & Co Ltd	Jets Technics International Holdings Ltd
Mediaring Ltd	Teckwah Industrial Corp Ltd
Zagro Asia Ltd	King Wan Corp Ltd
Eucon Holding Ltd	Lum Chang Holdings Ltd
Contel Corp Ltd	Sin Ghee Huat Corp
Ap Oil International Ltd	Sunmart Holdings Ltd
Straco Corp	Achieva Ltd
Yhi International Ltd	Kingsmen Creatives Ltd
	Elec & Eltek International Co Ltd

Appendix II Corporate Governance Questionnaire

Question Number	Survey Question
	Section A -- Rights of Shareholders
A.1	Does the company offer other ownership rights beyond voting?
A.2*	Is the decision on the remuneration of board members or executives approved by the shareholders annually?
A.3*	How is the remuneration of the board presented?
A.4*	Quality of Notice to call Shareholders Meeting in the past one year.
	(i) Appointment of directors, providing their names and background
	(ii) Appointment of auditors, providing their names and fees.
	(iii) Dividend policy, providing the amount and explanation.
A.5	Did the Chairman of the Board attend at least one of AGM in the past two years?
A.6*	(i) Did the CEO/Managing Director attend at least one of the AGM in the past two years?
*	(ii) Is a name list of board attendance available?
A.7	Do AGM minutes record that there was an opportunity for shareholders

to ask questions/ raise issues in the past one year?

(i) Is there record of answers and questions?

(ii) Is any resolution being solved?

A.8   Does the company have anti-takeover defenses?

(i) Cross shareholding

(ii) Pyramid holding

(iii) Board members hold more than 25% of share outstanding

Section B -- Equitable Treatment of Shareholders

B.1   Does the company offer one-share, one-vote?

B.2   Is there any mechanism to allow minority shareholders to influence board composition?

B.3   Have there been any cases of insider trading involving company directors and management in the past two years?

B.4*   Does the company provide rationales/explanations for related-party transactions affecting the corporation?

B.5   Is the company a part of an economic group where the parent/controlling shareholder also controls key suppliers, customers, and/or similar businesses?

* denotes item included in the Transparency Index

B.6*   Has there been any non-compliance case regarding related-party transactions in the past one year?

B.7*

Does the company facilitate voting by proxy?

B.8*   (i) Does the notice to shareholders specify the documents required to give proxy? (ii) Is there any requirement for a proxy appointment to be notarized?

B.9*   How many days in advance does the company send out the notice of general shareholder meetings?

Section C -- The Role of Stakeholders in Corporate Governance

C.1*   Does the company explicitly mention the safety and welfare of its employees?

C.2*

Does the company explicitly mention the role of key stakeholders such as customers or the community at large (or creditors or suppliers)?

C.3*   Does the company explicitly mention environmental issues in its public communications?

C.4   Does the company provide an ESOP (employee share option program), or other long-term employee incentive plan linked to shareholder value creation, to employees?

Section D -- Disclosure and Transparency Does the company have a transparent ownership structure?

D.1*   (i) Breakdown of shareholdings. (ii) Is it easy to identify beneficial ownership? (iii) Is director shareholdings disclosed? (iv) Is management shareholding disclosed?

D.2   Does the company have a dispersed ownership structure?

D.3   Is the company's actual ownership structure obscured by cross-shareholdings?

D.4*   Assess the quality of the annual report. In particular, the following:

       (i) Financial performance (ii) Business operations and competitive position (iii) Board member background (iv) Basis of the board remuneration (v) Operating risks

       Is there any statement requesting the directors to report their transactions of company stock?

D.5*
       Does the company use an internationally recognized accounting standard?

D.6
D.7*
       (i) Does the company have an internal audit operation established as a separate unit in the company?

       (ii) To whom does the internal audit function report, please identify?

       * denotes item included in the Transparency Index

D.8*   Does the company perform an annual audit using independent and reputable auditors?

D.9*   Are there any accounting qualifications in the audited financial statements apart from the qualification on Uncertainty of Situation?

D.10* Does the company offer multiple channels of access to information?

       (i) Annual report
       (ii) Company website
       (iii) Analyst briefing
       (iv) Press conference/ press briefing

D.11   Is the financial report disclosed in a timely manner?

D.12* Does the company have a website, disclosing up-to-date information?

       (i) Business operation
       (ii) Financial statement

(iii) Press release
(iv) Shareholding structure
(v) Organization structure
(vi) Corporate group structure
(vii) Annual report downloadable
(viii) Be provided in both Chinese and English

Section E -- Responsibilities of the Board

E1.1*   Does the company have its own written corporate governance rules?

E1.2*   Does the board of directors provide a code of ethics or statement of business conduct for all directors and employees?

E1.3*   Does the company have a corporate vision/mission?

E.2   Does the regulatory agency have any evidence of the firm's non-compliance with rules and regulations over the last three years?

E.3*   Assess the quality and content of the Audit Committee Report in the annual report.

(i) Attendance
(ii) Internal control
(iii) Management control
(iv) Proposed auditors
(v) Financial report review
(vi) Legal compliance
(vii) Conclusion or opinion

E.4   Have board members participated in the China Securities Regulation Committee (or equivalent) training on corporate governance?

E.5   How many board meetings are held per year?(at least twice one year is required in China)

E.6   (i) Is the chairman an independent director?
           (ii) Is the chairman also the CEO?
           * denotes item included in the Transparency Index

E.7   Does the company have an option scheme which incentivizes top management?

(i) Did the company have the option (and/ or other performance incentive) schemes in the past but still in effect?

(ii) Does the company currently have option (and/or other performance incentive) schemes?

E.8   Does the board appoint independent committees with independent members to carry out various critical responsibilities such as: audit, compensation and director nomination?
(i) Audit
(ii) Compensation

(iii) Director nomination committee

E.9   What is the size of the board?
E.10   How many board members are non-executive directors?

E.11*   Does company state in its annual report the definition of 'independence'?

E.12   Among directors, how many are independent directors?

E.13*   Does the company provide contact details for a specific investor relations person?

E.14*   Does the company have a board of directors report?

E.15   Does the company disclose how much they paid the independent non-executive directors?

E.16   Do the company provide training to directors (including executive and nonexecutive directors)?

* denotes item included in the Transparency Index

Table 1

Corporate Governance Score Statistics

This table reports descriptive statistics regarding our sample of firms in Singapore, which consists of all firms listed on SGX from 2006 to 2009. We delete from the sample any observation with missing values, and firms for which sufficient financial data is not available on Compustat. CG is a measure of corporate governance in the given year and is computed using 120 criteria which covers 6 areas from shareholder rights to disclosure & transparency.

Sector statistics of corporate governance score in Singapore

Industry	2007		2008		Overall	
	Mean	N	Mean	N	Mean	N
Mining	66.3	13	65.54	13	65.9098	26
	(0.65)		(1.08)		(1.63)	
Construction	62.11	12	63.85	12	63.02	24
	(-1.28)		(0.60)		(-0.8)	
Manufacturing	64.66	229	62.46	224	63.52	453
	(-0.46)		(-0.99)		(-0.97)	
Transportation, Communications, Electric, Gas, And Sanitary Services	70.13**	40	67.07**	40	68.5**	80
	(3.29)		(3.10)		(4.48)	
Wholesale Trade	61.8*	51	60.12*	51	60.9*	102
	(-2.3)		(-2.3)		(-2.38)	
Retail Trade	66.32	19	64.08	19	65.1	38
	(0.72)		(0.72)		(0.98)	
Services	66.27	43	64.81	42	65.5*	85
	(1.11)		(1.54)		(1.88)	

*** Significant below the 1% level
** Significant below the 5% level
* Significant below the 10% level

Figure 1

Portfolio value comparison

Figure 1 shows the comparison of two portfolios consisted of the Singapore top 25% (well

governed portfolio) and bottom 25% (poorly governed portfolio) firms. Values are adjusted with

an initially 100 investment, both of the portfolio values are indicated by either blue (top 25%) or

red (bottom 25%) lines. The grey line and brown dot is the profit made by buying the well

governed portfolio and selling poorly governed portfolio in the sampling period indicated by the x
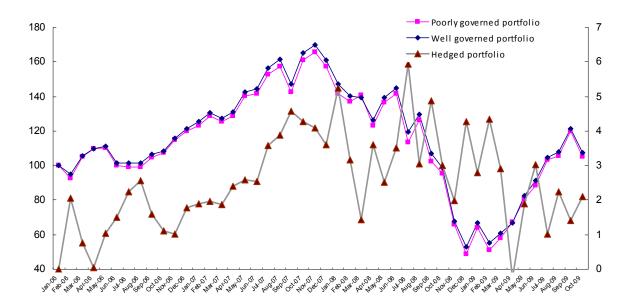
axis.

Table 2

Zero-investment hedged portfolio return

Table 2 shows the significance of a positive abnormal return if we long the well governed

portfolio and short the poorly governed one. The sample used for t test is daily portfolio values. In

the three year time horizon, the average monthly return for this hedged portfolio is 0.2%, which

could be translated into a 2.4% annual return. If we conduct a "buy and hold" strategy, the return

in 2006 is 1.82%, 2.6% in 2007, and 1.68% in 2008. In this three year full sample period make an

average annual return of 2.03%

T-test Procedure

Statistics

	N	Lower CL Mean	Mean	Upper CL Mean	Lower CL Std Dev	Std Evl	Upper CL Std Dec	Std Err
Portfolio Return	943	0.1024	5.2231	10.344	76.66	80.126	83.916	2.6093

T-Tests

	DF	t Value	Pr > | t |
Portfolio Return	942	**2.46**	0.0278

Table 3

Portfolio return decomposition

This table shows the results of the performance evaluation regressions of equation (1), for longing the Singapore top 25% well governed listed companies and shorting the bottom 25% or shorting the intersect firms in the bottom 25% of 2007 and 2008. The regression is following the methods from Bauer et al. (2003). Besides controlling the variables from Fama-French three factors, the result is also corrected for style exposures using the Carhart Model. Sector adjustment applied by using sector dummies. T-statistics are stated in parentheses. The result is consistent with other results presented on the defense. In the second strategy, the performance differential between the good and bad governance portfolio is larger, about 6% annually.

Value weighted Portfolio Performance Evaluation

Table 3.1 short the bottom 25% portfolio

	α	$R_{mt}-R_f$	SMB	HML	MOM
Portfolio return	-0.00067	0.11614*			
t stat	(-0.17)	(2.65)			
Portfolio return	-0.00128	0.10857**	0.0312		
t stat	(-0.32)	(2.38)	(0.65)		
Portfolio return	-0.00237	0.14241***	0.16365**	-0.26162**	
t stat	(-0.62)	(3.16)	(2.29)	(-2.38)	
Portfolio return	-0.00253	0.14859***	0.15538**	-0.26256**	0.6536
t stat	(-0.67)	(3.27)	(2.17)	(-2.39)	(1.02)

Table 3.2 Portfolio Performance Evaluation

Short the intersect firms between the bottom 25% firms in 2007 and 2008

	α	R_{mt}-R_f	SMB	HML	MOM
Singapore	-0.01666	0.69465**			
t stat	(-0.68)	(2.53)			
Singapore	-0.00682	0.81656**	-0.50208*		
t stat	(-0.28)	(2.96)	(-1.74)		
Singapore	-0.0017	0.65774**	-1.12371**	1.22783*	
t stat	(-0.07)	(2.34)	(-2.52)	(1.79)	
Singapore	-0.00065	0.61572**	-1.06743**	1.23418	-0.44468*
t stat	(-0.03)	(2.17)	(-2.39)	(0.68)	(-1.11)

*** Significant at the 1% level.
** Significant at the 5% level.
* Significant at the 10% level.

Table 4

Corporate governance and firm value in Year 2007

Table 4 shows the result of firm valuation regression as equation 3(sector adjusted) on year 2007.

The firm value is represented by Tobin's Q. The four control variables are computed following

the methods from Bauer & Gunster's paper on 2003. This table shows that corporate governance

plays a significant role in enhancing the firm value in Singapore and contributes to most of the

significance in the residue. The number of observations on 2007 is 234.

	α	Book Value	Age	ROE	ROE(lag)	Corporate Governance
			Year 2007 (Sector Adjusted)			
Tobbin's Q	10.58***	-1.366***				
t stat	(4.10)	(-3.32)				
Tobbin's Q	10.56***	-1.347***	0.00932			
t stat	(3.72)	(-3.31)	(0.02)			
Tobbin's Q	10.95***	-0.993**	-0.1109	-12.33725***		
t stat	(3.96)	(-2.39)	(-0.19)	(-3.6)		
Tobbin's Q	12.51***	-1.30587**	0.12656	-13.109***	-0.29588	
t stat	(3.74)	(-2.51)	(0.17)	(-3.2)	(-0.31)	
Tobbin's Q	-26.34	-1.28**	0.03263	-13.95***	-0.206	9.27151***
t stat	(-1.1)	(-2.49)	(0.04)	(-3.42)	(-0.22)	(3.17)

*** Significant at the 1% level.
** Significant at the 5% level.
* Significant at the 10% level.

Table 5

Corporate governance and firm value in Year 2008

Table 4 shows the result of firm valuation regression as equation 3(sector adjusted) on year 2008.

The firm value is represented by Tobin's Q. T he four control variables are computed following

the methods from Bauer & Gunster's paper on 2003. Like the year 2007, this table shows that

corporate governance plays a significant role in enhancing the firm value in Singapore and

contributes to most of the significance in the residue. The number of observations on 2008 is 271

	α	Book Value	Age	ROE	ROE(lag)	Corporate Governance
Tbbin's Q	4.26***	-0.2098**				
t stat	(7.48)	(-2.56)				
Tobin's Q	3.623***	-0.2077**	0.2825*			
t stat	(5.64)	(-2.56)	(2.08)			
Tobin's Q	3.529***	-0.18381*	0.2786*	-0.34		
t stat	(5.36)	(-2.14)	(2.02)	(-0.87)		
Tobin's Q	3.597***	-0.2352*	0.2718	-0.7336	1.3852	
t stat	(4.87)	(-2.27)	(1.64)	(-1.42)	(-1.4)	
Tobin's Q	-0.2466	-0.2564**	0.2429	-0.7089	1.2781	0.9751**
t stat	(-0.08)	(-2.45)	(1.46)	(-1.37)	(1.53)	(2.36)

Year 2008 sector adjusted

*** Significant at the 1% level.
** Significant at the 5% level.
* Significant at the 10% level.

Table 6

Corporate governance and firm operating performance in year 2008

Table 6 shows the result of firm valuation regression as equation 3&4 on year 2008. The firm

performances are represented by Net profit margin and Return on equity. The regression is

constructed following Bauer & Gunster's paper on 2003. In consistent with UK result, corporate

governance are not significantly related to the firm operating performance. The T-statistics are

stated in parentheses

	Model 1 sector adjusted		Model 2 sector adjusted	
	Net Profit margin		Return On Equity	
Year	2007	2008	2007	2008
Intercept	0.13	-0.02507	-0.4889	-0.4787
t stat	(0.42)	(-0.06)	(-1.54)	(-0.45)
Book/Market Ratio	0.00	0.00914	0.00	0.0007
t stat	(0.01)	(0.60)	(1.63)	(0.33)
Corporate governance	0.02	0.04915	0.12	0.042
t stat	(0.23)	(0.50)	(1.57)	(0.17)

  *** Significant at the 1% level.
  ** Significant at the 5% level.
  * Significant at the 10% level.

Table 7

Discretionary accruals descriptive statistics

Table 7 shows the statistics for discretionary accruals calculated from modified Jones model

(Formula 11 from Data and Methodology) in year 2007 and 2008. We can found on the table that

the discretionary accruals in 2007 are mostly positive, while the discretionary accruals in 2008

are mostly negative. Because earning management can be either up or down, it would make more

sense by comparing the size of discretionary accruals in both year, following Cornett (2006)

Discretionary Accruals Descriptive Statistics

Fyear	Variable	N	Mean	Median	Standard Deviation	25th percentile	75th percentile
2007	Discretionary Accruals/Assets	445	0.039456	0.018335	0.112	0.007793	0.03897
	Abs(Discretionary Accruals)/Assets	445	0.039626	0.018748	0.11195	0.007994	0.03897
2008	Discretionary Accruals/Assets	420	-0.21289	-0.097857	0.433	-0.22768	-0.0318
	Abs(Discretionary Accruals)/Assets	420	0.21	0.10	0.43289	0.031917	0.22768
Pooled	Discretionary Accruals/Assets	865	-0.08307	0.001245	0.34	-0.092599	0.01952
	Abs(Discretionary Accruals)/Assets	865	0.124203	0.03431	0.32389	0.0123649	0.11451

Table 8

Corporate governance and earning management in year 2007

The dependent variable in regression 1 is signed discretionary accruals, in regression 2 it is the absolute value of discretionary accruals which represents the size of discretionary accrual in this year. Discretionary accruals are defined as the difference between actual accruals and the accruals predicted from the modified Jones models (Equation 1). Regression is estimated as a pooled cross section for SGS listed companies. No significance is found in year 2007 samples. The number of observation on 2007 is 266, sector adjustment applied.

Subindex A: Rights of Shareholders

Subindex B: Equitable treatment of Shareholders

Subindex C: Roles of Stakeholders in CG

Subindex D: Disclosure and Transparency

Subindex E: Responsibilities of the Board

	Dependent Variable	
Explanatory Variable	Discretionary Accruals as Percentage of Assets	Size of Discretionary Accruals as Percent of Assets
	Regression 1	Regression 2
Ln(Subindex A)	-0.00573	-0.00601
	(-0,4)	(-0.42)
Ln(Subindex B)	-0.00937	-0.00937
	(-0.78)	(-0.78)
Ln(SubindexC)	-0.00895	-0.00879
	(-1.4)	(-1.12)
Ln(Subindex D)	-0.01229	-0.01226
	(-0.7)	(-0.69)
Ln(Subindex E)	0.01065	0.01096
	-0.6	-0.61
Ln(Firm Age)	-0.005	-0.00494
	(-1.44)	(-1.41)

Note:

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

Table 9

Corporate governance and earning management in year 2008

The dependent variable in regression 1 is signed discretionary accruals, in regression 2 it is the absolute value of discretionary accruals which represents the size of discretionary accrual in this year. Discretionary accruals are defined as the difference between actual accruals and the accruals predicted from the modified Jones models (Equation 1). Regression is estimated as a pooled cross section for SGS listed companies. Significance was found both on sub-index B and sub-index D. The number of observation on 2007 is 319, sector adjustment applied.

Subindex A: Rights of Shareholders
Subindex B: Equitable treatment of Shareholders
Subindex C: Roles of Stakeholders in CG
Subindex D: Disclosure and Transparency
Subindex E: Responsibilities of the Board

| Explanatory Variable | Discretionary Accruals for SGX listed companies | |
| | Dependent Accruals as Percentage of Assets | Size of Discretionary Accruals as Percent of Assets |
	Regression 1	Regression 2
ln (Subindex A)	0.1839*	-0.1840*
	(1.85)	(-1.85)
ln (Subindex B)	-0.6547**	0.6**
	(-2.0)	(2.10)
ln (SubindexC)	0.176**	-0.175
	(2.28)	(-2.27)
ln (Subindex D)	0.3566**	-0.35571**
	(2.10)	(-2.1)
ln (Subindex E)	0.2184	-0.2203
	(1.42)	(-1.16)
ln (Firm Age)	0.0188	-0.0186
	(0.70)	(-0.7)

Note:
*** Significant at the 1% level.
** Significant at the 5% level.
* Significant at the 10% level.

Table 10

Corporate governance and earning management in full sample

Here we combined the 2007 and 2008 data together into a panel dataset. The dependent variable in regression 1 is signed discretionary accruals, in regression 2 it is the absolute value of discretionary accruals which represents the size of discretionary accrual in this year. Discretionary accruals are defined as the difference between actual accruals and the accruals predicted from the modified Jones models (Equation 1). Regression is estimated as a pooled cross section for SGS listed companies. Significance on sub-index B is largely reduced, but significance on sub-index D still holds. The number of observation for full sample is 585, sector adjustment applied.

Subindex A: Rights of Shareholders
Subindex B: Equitable treatment of Shareholders
Subindex C: Roles of Stakeholders in CG
Subindex D: Disclosure and Transparency
Subindex E: Responsibilities of the Board

Discretionary Accruals for SGX listed companies (sector adjusted)

Explanatory Variable	Dependent Accruals as Percentage of Assets	Size of Discretionary Accruals as Percent of Assets
	Regression 1	Regression 2
ln (Subindex A)	0.00616	-0.01443
	(0.20)	(-0.47)
ln (Subindex B)	-0.09586	0.09
	(-1.73)	(1.80)
ln (SubindexC)	0.07734***	-0.085**
	(2.56)	(-2.58)
ln (Subindex D)	0.0565	-0.103*
	(0.83)	(-1.83)
ln (Subindex E)	0.0706	-0.04737
	-1.11	(-0.74)

Note:

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.