

**Corporate Governance and the Information Content of
Dividend Changes in Hong Kong**

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**A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Philosophy
in
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Abstract of thesis entitled:

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Submitted by LI Wing-yi

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Abstract

This paper examines how the information content of dividends is related to corporate governance structure by using a sample of 228 announcements of dividend changes during 2001-2002. The empirical evidence suggests that there is a positive association between stock price reaction and dividend surprises. In addition, by using stockholdings and the degree of divergence between cash flow and control rights of the largest shareholder as the proxies for potential expropriation of minority shareholders, this paper shows that the stock price reaction to announcements of dividend changes is larger for firms with potentially greater likelihood of expropriation of minority shareholders. Moreover, the nonlinear ownership effects of dividend change announcements on stock price reaction are also strongly supported by evidence. As a whole, these results provide support for the agency cost hypothesis of dividend payment. Dividend payments, which guarantee a pro-rata payout for both large and small shareholders, play a critical role in limiting expropriation of minority shareholders in Hong Kong.

摘要

本文採用了於二零零一至二零零二年間二百二十八次股息變動宣布作為樣本，藉以探討股息的信息含量怎樣與企業的管治結構有所相關。實證結果顯示，股價的反應與未預期股息變動有著正向的關係。此外，本文以最大股東的持有股份數量和現金與控制權的分距作為該公司剝削少數股東傾向的代表，表明剝削少數股東傾向愈大的公司，其股價對股息變動宣布的反應愈大。實證結果亦強烈顯示公司的擁有權對因股息變動而引發的股價反應有著非線性的影響。總結而言，實證結果為代理成本假說提供證據。公司派發股息，可保證股息能按比例分配給大與小股東，這在轄制大股東剝削小股東扮演重要的角色。

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Chapter 1 Introduction

The issue of dividends has been one of the most controversial topics in the subject of corporate finance. Economists have long been puzzled by why corporations pay dividends and why investors desire dividends. Agency cost theory of dividends, which has received wide attention in recent years, provides a fresh look at how dividends address agency problems by reducing the cash flow available to corporate insiders.

Much of existing literature focuses on the role of dividends as a disciplinary mechanism in a dispersed share ownership structure: a large number of dispersed shareholders and employed managers who effectively control the company. In this situation, conflicts of interest exist mainly between the dispersed shareholders and entrenched manager. Dividend payments can reduce the cash flow available to managers, thereby preventing managers from investing in negative present value projects (Jensen, 1986) and they are monitored more frequently by the capital market in seeking new funds (Easterbrook, 1984).

In most East Asian countries including Hong Kong, the share ownership is in fact highly concentrated. It is common for a single large shareholder or a tightly knitted group of shareholders to retain a controlling stake in the company. The controlling stake is typically retained by the founder of the company and by his descendants. Also, the controlling shareholder generally takes an active interest in running the company, by choosing the management and directly taking executive positions. In this situation, the main conflict in

corporate governance is that between the large, controlling shareholder and small, minority shareholders. Dividend payments, which guarantee a pro-rata payout for both large and small shareholders, provide an ideal device for limiting expropriation of minority shareholders.

The purpose of this paper is to investigate the relationship between corporate governance structure and the information content of dividend changes in Hong Kong. Specifically, by examining the price response to dividend change announcements, this paper investigates the role of dividends in limiting expropriation of minority shareholders in Hong Kong. There are at least two important implications from corporate governance theory on the reaction of stock price to dividend change announcements.

The first implication is the positive association between stock price reaction and dividend change announcements. The controlling shareholder, by paying more dividends to shareholders, can show a credible commitment of not expropriating the retained earnings and of being more disciplined. On the other hand, dividend cuts increase the cash that the controlling shareholder can potentially expropriate. As a result, stock prices should react favorably to announcements of dividend increases and unfavorably to dividend decreases.

The second implication is the positive relationship between the magnitude of stock price reaction to dividend change announcements and the potential expropriation of minority shareholders. Agency cost theory predicts that the more severe the large-small shareholder conflict, the more important are dividends as a means of agency cost reductions. As a result, those firms with

potentially large agency conflicts should experience larger stock price reaction than firms with small agency conflicts.

By using a sample of 228 announcements of dividend changes over the period of 2001-2002, this paper finds that the stock price reacts favorably to announcements of unexpected dividend increases and unfavorably to unexpected dividend reductions. In addition, by using stockholdings and the degree of divergence between the cash flow and control rights of the largest shareholder as the proxies for potential expropriation of minority shareholders, this paper shows that the stock price reaction to announcements of dividend changes is larger for firms with potentially greater likelihood of expropriation of minority shareholders.

In particular, the empirical evidence suggests that stock price reaction to unexpected dividend changes is positively related to stockholdings and the degree of divergence between the cash flow and control rights of the largest shareholder. Moreover, the nonlinearity of ownership effects on stock price reaction to announcements of dividend changes are also strongly supported by evidence. Overall, these results provide support for the agency cost hypothesis of dividends. Dividend payments, which guarantee a pro-rata payout for both large and small shareholders, do play an important role in mitigating agency conflict between the large and small shareholders in Hong Kong.

The paper proceeds as follows. Section 2 is a literature review. Section 3 presents the hypothesized regression models and interpretations. Section 4 describes the sample criteria, data sources and variables. Section 5 reports the descriptive statistics and limitations. Section 6 presents the empirical findings. Section 7 relates the empirical results to prior literature. Section 8 is a conclusion.

Chapter 2 Literature Review

This section consists of three parts. The first part provides a review of relevant dividend literature. The second part summarizes prior evidence on corporate governance. Particularly, a relevant discourse on studies of ownership structure and corporate governance is presented. The third part discusses previous literature on the link between corporate governance and dividend policy.

2.1 Relevant Dividend Literature

In this part of the literature review, the Miller and Modigliani dividend irrelevance proposition is first outlined. Secondly, previous empirical findings on the information content of dividends are summarized. Thirdly, two predominant explanations of the information content of dividends—cash flow signaling theory and agency cost theory are presented.

2.1.1 Dividend Irrelevance Theory

In their 1961 article on dividend policy, growth and valuation of shares, Miller and Modigliani (hereafter referred to as MM) show that in a world of perfect and complete capital markets, dividend policy is irrelevant to the value of the firm.

From the firm's perspective, dividend policy is irrelevant as the value of the firm is determined by the earnings power of the firm's investment policy. Theoretically, the firms can fund the optimal investment opportunities by three sources. The firms can retain their profits and fund the investment policy by retained earnings. The firms can pay out those earnings as dividends and raise the required capital by issuing new shares. They can also finance dividends by using debt. Since capital markets are perfect and complete, the manner in which the earnings stream is split between dividends and retained earnings does not affect the value of the firm.

From the perspective of investors, dividend policy is irrelevant as investors are able to replicate any desired stream of payments by appropriate purchases and sales of equity. If dividends are less than desired, investors can sell a portion of their stock to obtain the desired cash distribution. If dividends are more than desired, investors can use dividends to purchase additional shares in the company. In other words, investors are able to manufacture “homemade” dividends. Thus, investors should find no difference between returns in the form of cash dividends and returns in the form of capital gains.

In fact, the dividend irrelevance proposition of MM rests on two preconditions. First, it is assumed that investment decisions of the firm are unaffected by its dividend decisions. Second, perfect and complete capital markets (symmetric information, complete contract possibilities, no taxes and transaction cost) are assumed to exist. Therefore, the dividend irrelevance proposition of MM can be interpreted as, if one of the assumptions underlying the result is violated, dividend policy could affect the firm value.

2.1.2 Information Content of Dividends

MM show that in the frictionless world, the firm’s dividend policy is irrelevant in stock price valuation. However, capital markets are not perfect. MM acknowledge that dividend changes influence stock prices and attribute this phenomenon to the information content of dividends. The association between dividend changes and stock prices is obviously an empirical question and has been subjected to extensive empirical research.

In a study of dividend changes for 135 firms, Pettit (1972) found that abnormal price changes are associated with the announcements of dividend changes. Such price changes are in excess of those that can be explained by the movements in the market index and by the relative risk of the individual securities. Also, most of the price adjustments are found to take place either on the day of the dividend announcement or by the following day. Based on these results, Pettit concluded that dividend changes do convey new information to the market and therefore affect share prices.

As suggested by later studies, one limitation of Pettit's study concerns the possible effect of simultaneous earnings announcements. Because earnings and dividend announcements are frequently made jointly, the large abnormal price changes that are observed to be associated with changes in dividends may also be explained by large changes in earnings that are announced at the same time. Pettit's study on its own does not prove that dividends rather than earnings are the source of the information that cause the observed abnormal price changes.

Aharony and Swary (1980), however, are able to separate the dividends effect from the earnings effect by examining only the quarterly dividends that are announced on dates different from the dates of earnings announcements. They find that dividend increase, on average, result in a statistically significant 0.35 percent positive stock price change. Price response is more pronounced for dividend cuts. The stock price declines of between 1.13 and 1.46 percent on the announcement day, and cumulative stock price declines of between 4.62 and 5.39 percent over the two-week period preceding and including the day the dividend cut are announced.

A further study by Asquith and Mullis (1983) suggested that the information effect of dividends is much larger than were previously calculated by Aharony and Swary. They contended that studies measuring the impact of dividend changes on stock price captured only the difference between the actual change and the anticipated change that is already reflected in the share price. In order to examine the total effect of dividend changes on stock price (not just the unanticipated portion), Asquith and Mullis analyzed a sample of 160 firms that had announced their first dividend after paying no dividends for at least ten years. Assuming the whole of the first dividend is unexpected, they find that there are statistically significant increases in the stock price from such dividend initiations. The abnormal returns over the two-day announcement period averaged 3.7 percent, compared to the 1 percent that was observed by Aharony and Swary. When they excluded from the sample those firms that announced other important information (earnings, mergers, and spin-offs) within twenty-one days of the dividend announcement, the results are more pronounced.

To sum up, the empirical evidence strongly suggests that shares prices are significantly affected by changes in dividend policy. The market reacts positively to announcements of dividend increases and negatively to announcements of dividend decreases, suggesting that investors interpret these changes as good or bad news, respectively. However, the question of precisely what information is contained in dividend announcements has not been fully resolved.

As dividend research reports a strong empirical tie between dividend announcements and stock prices changes, to explain the observed price effects of dividends, cash flow signaling theory has been developed which posits that dividend announcements serve as a means of conveying information from management to investors. A brief review of cash flow signaling models and empirical evidence is presented as follows.

2.1.3 Cash Flow Signaling

According to MM (1964), the information content of dividends is driven by managers' reluctance to cut dividends. As a result, a dividend cut implies a serious deterioration in the firm's financial prospects, whereas a dividend increase implies an improved future outlook for the firm. However, it was not until the end of the 1970s that theoretical models of dividend signaling were developed.

2.1.3.1 Theoretical Models

The basic premise in dividend-signaling models is that there is asymmetric information between managers and outside investors. Managers are motivated to release private information to the investors and to use dividend as signals. Also, the signal of this information must be credible. This means that only good firms can bear the cost of dividend payments. Since weaker firms have no incentive to mimic the good firms, a separating equilibrium will result.

There are several well-known dividend-signaling models. In the Bhattacharya model (1979), dividends are used as an ex-ante signal of future cash flow. The cost of signaling is the opportunity cost of the use of internal funds or the transaction costs associated with external financing. In contrast, the cost of signaling is the increased shareholder tax liabilities and constrained firm liquidity (John and William model, 1985). In Miller and Rock (1985), dividends are not intended to be used as a signal. They suggest that investors draw inferences about the firm's internal operating cash flows from the dividend announcements. In sum, although different signaling models have different presumptions, they all predict the positive relationship between unexpected dividend changes and stock price changes.

2.1.3.2 Empirical Evidence

If changes in dividend policy do convey new information about future cash flow, dividend changes should be positively associated with subsequent earnings changes. To test this proposition, DeAngelo, DeAngelo and Skinner (1996) examined 145 firms whose annual earnings growth declined in year zero, after at least nine years of consecutive earnings growth. Thus, year zero represents the first earnings decline in many years and this year's dividend decision may convey a lot of information to outsiders. In particular, it can help the market to assess whether the decline in earnings is permanent or transitory. However, they find no support that favorable dividend decisions represent a reliable signal of superior future earnings performance. There is no evidence of positive future earnings surprises for the 99 firms that increased their dividends. Not only do the dividend-increasing firms not experience positive earnings

surprises in subsequent years in absolute terms, their earnings performance is also no better than those firms that do not change their dividend.

By measuring earnings changes relative to the industry average changes in earnings (adjusted for earnings momentum and mean revision for earnings), Benarti, Michaely, and Thaler (1997) do the similar task and find that there is a very strong lagged and contemporaneous correlation between dividend changes and earnings changes. There is no evidence of a positive relation between dividend changes and future earnings changes.

To summarize, the overall evidence does not support the argument that dividend changes convey information about future earning. The relation between dividend changes and subsequent earnings changes are opposite to what the theory predicts. Therefore, dividends are believed to be a lagging (or current) indicator instead of a leading indicator of earnings.

As less success has been achieved in tying the information content of dividend announcements to an observable improvement in future cash flows or earnings, later studies have called the cash flow signaling theory into question and an alternative explanation, i.e., agency cost theory, has been put forward to explain the information content of dividends. The theoretical framework of agency cost theory of dividends and empirical evidence are summarized as follows.

2.1.4 Agency Cost Theory

The potential agency costs associated with the separation of management and ownership has been recognized in economic literature for more than two decades (Jensen and Meckling, 1976; Fama and Jensen, 1983a,b). The agency theory of dividends suggests that dividends can play a critical role in mitigating the agency costs associated with the separation of corporate ownership and control.

2.1.4.1 Theoretical Models

Easterbrook (1984) suggested that the payment of dividends, by causing firms to visit the capital markets more frequently for financing needs, brings managers under greater scrutiny of capital markets. By paying dividends to shareholders, the firm makes a quasi-fixed commitment to pay out cash at regular intervals. This commitment reduces the discretionary resources under the control of managers and subjects them to greater monitoring by capital markets that occurs when the firm seeks new capital. In sum, Easterbrook's analysis predicts that the market responds positively to dividend increase announcements because it incorporates the value of additional monitoring into the stock price.

An alternative agency cost explanation for the relevance of dividends is offered by Jensen (1986), who hypothesizes that cash balances in excess of managers needed to fund positive net present value projects are likely to be wasted on inefficient expansion. Jensen argues that managers have incentives

to expand the corporation beyond its optimal size because this increases the resources under managerial control. Also, inefficient expansion is beneficial for managers since executive compensation is positively related to firm size. Consequently, if the corporation has substantial excess funds, managers will often invest in negative net present value (NPV) projects. Based on this argument, Jensen suggests that the partial solution to this problem is the dividend payouts. Dividend payments reduce the free cash flow available to managers, thereby preventing them from investing in negative NPV projects and perquisite consumption.

Hence, Jensen's (1986) free cash flow hypothesis predicts that a dividend increase by a firm with free cash flow problems will reduce the market's estimate of the amount of cash that will be wastefully invested, causing an increase in firm value.

2.1.4.2 Empirical Evidence

One important implication of the free cash flow hypothesis is that the overinvestment problem is likely to be more pronounced in cash-rich companies that are devoid of growth opportunities. Therefore, an increase in dividends should have a greater and positive price impact for firms that overinvest than for firms that do not.

Based on this idea, Lang and Litzenberger (1989) used Tobin's q , the ratio of the market value of assets to the replacement cost of assets, as a measure of a firm's investment opportunities to test the free cash flow hypothesis. They

asserted that having a Tobin's q value of less than 1 is a sufficient condition for a firm to be categorized as overinvesting. By segmenting their sample into high- q ($q > 1$) and low- q ($q < 1$) firms, Lang and Litzenberger find that for dividend-increase announcements, low- q firms experience a larger price appreciation than high- q firms do. For dividend-decrease announcements, low- q firms also experience a more dramatic price drop. They argue that the greater effect of dividend changes on low- q firms is consistent with the free cash flow hypothesis. They also conclude that the market places a high value on dividends that remove cash from the control of managers who have poor investment opportunities.

Their conclusions are disputed in the later work of Denis, Denis, and Sarin (1994), which repeated the Lang and Litzenberger experiment over a longer time period. They argued that the negative relation between Tobin's Q and the stock price reaction to dividend changes may be due to a negative relation between dividend yield and Tobin's Q . By using a sample of 6,777 dividend changes between 1962 and 1998, they documented a symmetric reaction to dividend changes between high and low Tobin's Q firm, when they controlled for the level of dividend yield, firm size, and the magnitude of the change in the dividend yield. They also found that capital expenditures increased following dividend increases and decreased following dividend decreases regardless of the level of Tobin's Q , which supports the cash flow signaling hypothesis. Yooh and Starks (1995) also performed similar tests and again found in favor of the signaling hypothesis, and against the free cash flow hypothesis.

To sum up, the agency cost explanation of information content of dividends is far from conclusive as the empirical evidence is rather mixed. More refined test is needed to shed light on this argument.

2.2 Relevant Literature on Corporate Governance

Up to this point, a brief review of dividend literature related to the information content of dividends has been outlined. In this part of the literature review, prior findings on ownership structure and corporate governance are summarized to provide a closer look at corporate governance in Hong Kong. Specifically, a general picture of ownership structure in Hong Kong is first described. Then the agency problems that are associated with the ownership structure are discussed.

2.2.1 Ownership Structure in Hong Kong

Ownership structure in Hong Kong is characterized by the dominance of one primary owner or by a tightly knit group of family members. The dominant shareholder, typically a founder or his immediate family, holds a significant number of shares. Besides, the dominant shareholder usually participates in firm management directly or indirectly through top managers, and influences most of the management decision. In particular, most of Hong Kong-listed firms are managed through blood and marriage ties. Many of these family members actively participate in the daily operations of their firms by appointing themselves or trusted relatives and colleagues as senior executives or board directors.

These distinctive features of ownership structure in Hong Kong are also confirmed by recent evidence. For example, La Porta, Lopez-De-Silanes, and Shleifer (1999) investigated the control structures of the twenty largest publicly

traded corporations in 27 rich countries, including Hong Kong. By tracing back the ownership into firms that are widely held and firms that have ultimate owner, they find that Hong Kong companies, on average, have more concentrated ownership comparing with the firms in other 26 countries except Mexico. The concentrated ownership is usually in the hands of family. Claessens, Djankov, Lang (2000) also carry out a similar task for 2980 publicly-traded companies in nine East Asian countries including Hong Kong. They find that the separation of management from ownership control is rare in Hong Kong. More than two-thirds of Hong Kong companies have managers who are a member of the controlling owner's family.

2.2.2 Ownership Concentration

As discussed above, corporate ownership structure in Hong Kong is characterized by the dominance of the controlling family who also participates in the firm's management. Jensen and Meckling (1976) suggested that the greater alignment of manager and shareholder interests as management stock ownership increase. However, there is also a potential downside to high ownership concentration. Shleifer and Vishney (1997) argued that when ownership concentration increases to a level where an owner obtains effective control, the nature of agency problems shifts away from conflicts between the manager and shareholders to conflicts between the controlling owner and minority shareholders. This conflict can take several forms—from the diversion of corporate earnings to the advantage of the controlling shareholders to the use of the company's assets to favor other companies owned by them.

The agency conflicts associated with high ownership concentration have also been subjected to several empirical studies. The study of Morck, Schleifer, and Vishny (1988) examines the relationship between the ownership concentration (manager with high managerial holdings of firm) and firm valuation. They document that the relationship is not positive throughout. By using Tobin's Q as the measurement of firm valuation, Morck et al. (1988) show that firm value first increases, then decreases and increases again as ownership concentration increases. They declare that the non-monotonic relationship between ownership concentration and firm values is the result of two different effects and each of them dominates in different ranges of ownership concentration.

The first effect is the convergence-of-interest hypothesis, which predicts that a firm's market value increases with the rising ownership concentration. As the management has more shares of a firm, managers themselves have more incentive to manage the firm and increase the firm's value. This hypothesis dominates in the first and last range of a firm's ownership concentration. The second effect is the entrenchment hypothesis, which predicts that a firm's market value decreases with the rising ownership concentration. Morck et al. (1988) suggest that the relatively high ownership concentration can entrench management from the discipline of the market for corporate control, thereby enabling managers to better act in their own interest and lower the firm's value. This hypothesis dominates in the middle range of corporate ownership concentration. In sum, these results provide support for entrenchment effect of high ownership concentration.

2.2.3 Separation of Cash Flow Rights and Control Rights

In addition to the characteristic concentrated ownership, most East Asian corporations are characterized by a complicated ownership structure, and a large separation of voting from cash flow rights. For example, by tracing back the ownership with the ultimate owner of 2980 publicly-traded companies in nine East Asian countries, Claessens, Djankov and Lang (2000) find that the controlling shareholders in East Asian corporations typically have control over the firm in excess of their cash flow rights. Control is often enhanced through the use of pyramid structures, cross-holdings and deviations from the one share one vote.

Based on this distinguishing feature of East Asian corporations, Claessens, Djankov, Fan and Lang (2002) investigated the entrenchment effect associated with the separation of ownership and control. They documented that the corporate performance is negatively related to the divergence between the cash flow and control rights of the largest ultimate owner, and it in turns reflects the degree of expropriation of minority shareholders. By using the market-to-book ratio as the measurement of firm valuation, they find that the higher cash-flow rights of the controlling shareholder are associated with the higher market valuation of firms, which is consistent with the incentive effect. On the other hand, higher control rights of the controlling shareholder are associated with lower market valuation. The negative effect of control is more pronounced if there is a sharp divergence between the cash flow and control rights. They declare that these results provide evidence of the expropriation of minority shareholders.

Their empirical findings are also consistent with earlier theoretical frameworks, which predict that large potential agency conflicts are associated with the separation of cash flow rights and control rights. For example, Bebchuck, Kraakman, and Triantis (1999) argue that such ownership structure can create agency costs an order of magnitude larger than the costs associated with controlling shareholders who also have a majority of the cash-flow rights in their corporation. This is because the size of agency costs increases at a sharply increasing rate as the size of cash flow rights decreases.

To summarize, in Hong Kong with concentrated ownership by controlling families, the main conflict in governance is the conflict between the large shareholders and minority shareholders. Therefore, the potential expropriation of minority shareholders, which has received wide attention in recent years, is one of the key concerns of corporate governance in Hong Kong.

2.3 Relevant Literature on Corporate Governance and Dividend Policy

Dividend policy is one of the important financial decisions and is obviously affected by corporate governance of firms. In this part of literature review, the prior research on the link between corporate governance and dividend policy are summarized.

2.3.1 Corporate Governance and Dividend Payout Levels

Although there has been a considerable amount of research on both corporate governance and dividend policy, the empirical evidence of the relation between corporate governance and dividend policy is limited. The study by La Porta, Lopez-De-Silanes, Shleifer and Vishny (2000) (henceforth referred to LLSV) is one of few studies that analyze explicitly the impact of corporate governance characteristics (degree of shareholder protection in the firm's country of incorporation) on dividend policy. They examine the relation between investors' protection and dividend policy and test two hypotheses.

The first is the substitution hypothesis, which predicts that management would pay more dividends in those countries where investor protection is not high. This hypothesis asserts that the market force and the resulted dividends are "substitute" for effective investor protection. As firms want to raise external funds in the capital market, firms in countries with poor investor protection would pay out more dividends voluntarily to establish their reputation. It is especially the case for firms with higher growth prospects. The second is the outcome hypothesis, which predicts that those countries with

good investor protection would pay more dividends. This hypothesis suggests that dividends are the “outcome” of legal protection. Shareholders utilize their legal powers to force management to disgorge more cash flow as dividends.

By using the sample of 4000 large firms from 33 countries, La Porta et al. (2000) found that firms in countries with better investor protection make higher dividend payouts than do firms in countries with lower investor protection. Moreover, in countries with more legal protection, high-growth firms had lower payout ratios. Their findings support the outcome hypothesis, which states that investors use their legal power to force dividends when growth prospects are low. There is also no evidence to show that in countries with low investor protection, management will voluntarily commit itself to paying out higher dividends.

In addition, Faccio, Lang and Young (2001) extended their work and document that the dividend policy is related to whether the corporation is tightly affiliated to a business group or not. By using the degree of divergence between the cash flow and control rights as a proxy for potential agency problems, they found that a large divergence between the cash flow and control rights is associated with a lower level of dividends in Asian countries, where loosely affiliated corporations are widespread. On the other hand, corporations with large divergence between the cash flow and control rights pay significantly higher dividend levels in Western Europe, where corporations are mainly tightly affiliated.

Faccio, Lang and Young (2001) provided explanations for these findings. They suggested that the association between potential agency problems and dividend levels probably depends on the market's anticipation of expropriation by the controlling shareholder. As shareholders are less alert to potential expropriation by loosely affiliated corporations in Asian countries, high potential agency problems are associated with low dividend payouts. This result provides support for the outcome hypothesis. In contrast, as shareholders are able to anticipate the expropriation by tightly affiliated corporations in Western Europe, they would demand higher dividend payouts. Consequently, high potential agency problems are associated with high dividend payouts, which is consistent with the substitution hypothesis.

2.3.2 Corporate Governance and Stock Price Reaction to Dividend

Changes

Instead of relating corporate governance to dividend payouts, corporate governance is also potentially associated with the price effects of dividend change announcements. The study by Dewenter and Warther (1998) is the one that investigates how Japanese governance structures differ from those in the United States and how such differences affect stock price reactions to dividend announcements.

In Japan, many companies are bound together in industrial groupings (keiretsu) that involve horizontal and vertical linkages among member companies. Also, keiretsu companies usually have interlocking boards of directors with senior managers sitting on each other's boards. Owing to this

unique governance structure, Dewenter and Warther suggested that Japanese and U.S. firms would have some important differences in terms of corporate monitoring and information sharing. These differences in turn affect the role of dividends. For instance, if keiretsu structures are supposed to have less information asymmetry between managers and investors, dividend announcements may have a smaller pricing effect in Japan than in the United States. Additionally, if keiretsu and main bank monitoring of managers is effective, then dividend payments may not be necessary to reduce managers' tendency to overinvest free cash flow.

By using the event study of dividend omission and initiation announcements, Dewenter and Warther documented that the pricing effect of dividend announcements is much smaller in Japan than in the United States. These results hold even after controlling for concurrent earnings announcements, the number of years that dividends were paid/not paid, and tax clientele effects. They concluded that the diminished role for dividends in Japan is consistent with both asymmetric information and agency cost explanations of dividends. The Japanese governance style can provide a more effective monitoring mechanism and reduce the effect of dividend policies on share prices in Japan compared with the situation in the United States.

To summarize, a strong association between corporate governance and dividend policy is well documented in the recent empirical evidence. However, the question of precisely how corporate governance is related to dividend policy is inconclusive. Inspired by these findings, this paper attempts to investigate the relationship between corporate governance and the information

content of dividend changes in Hong Kong. Specifically, by examining the pricing effects of dividend change announcements, this paper examines the role of dividends for limiting expropriation of minority shareholders in Hong Kong.

Chapter 3 Methodology

As stated above, share ownership is highly concentrated in Hong Kong. It is common that a single large shareholder or a tightly knit group of shareholders retains a controlling stake in the company. The controlling shareholder typically participates in firm management directly or indirectly through top managers, and influences most of the management decisions. Accordingly, the major conflict in the governance of Hong Kong corporations is between the large, controlling shareholder and small, minority shareholders.

Agency cost theory of dividends suggests that dividend payments can mitigate the agency conflicts by reducing the cash flow for corporate insiders. In order to investigate the role of dividends as disciplinary mechanism in Hong Kong, two implications are derived from the agency cost hypothesis and tested empirically in this paper. The hypothesis development, regression models and interpretations of each implication are presented in the remaining part of this chapter.

3.1 Stock Price Reaction to Dividend Change Announcements

3.1.1 Hypothesis Development

The first implication of agency cost hypothesis of dividends is the positive association between stock price reaction and dividend change announcements. Recent research on corporate governance of East Asian corporations documents the potential expropriation by the controlling shareholder (Shleifer and Vishney 1997). Typically, the controlling shareholder has the incentive and ability to seek other forms of compensation from expropriation than pro-rata dividends. This incentive arises because the controlling shareholder bears only a fraction of costs (forgone dividend payments in the proportion of his cash flow rights) but receives the full benefits of expropriation. Also, the controlling shareholder has the ability to extract private benefits, as he/she is able to exercise complete control of the company through his/her influence on management decisions.

Therefore, the controlling shareholder, by paying more dividends to outside shareholders, can make a creditable commitment of not expropriating the retained earnings and of being more disciplined. On the other hand, dividend cuts increase the cash that the controlling shareholder can potentially expropriate. As a result, outside shareholders would prefer to see an increase in dividends and so the stock prices should react favorably (unfavorably) to unexpected dividend increases (decreases) respectively.

3.1.2 Regression Model

Based on this first implication of agency cost hypothesis of dividends, the following model is introduced

$$CAR = \theta + b_1UD + b_2CE + u \quad (1)$$

where CAR is cumulative abnormal return, a measure of the market's reaction to dividend change announcements, UD is unexpected dividend changes, and CE is the change in concurrent earnings. As earnings and dividend announcements are made jointly in Hong Kong, change in concurrent earnings is included to control for the impact of simultaneous earning announcements.

3.1.3 Interpretations

The coefficient b_1 is the marginal effect of unexpected dividend changes on stock prices, which measures the stock price reaction per unit of unexpected dividend changes. Coefficient b_1 can also be interpreted as the information content of dividends. A statistical significance of coefficient b_1 implies that the changes in dividends do provide new information that affects the stock price. If the agency cost hypothesis is found to be supportive, the coefficient b_1 should be positive and to be statistically significant. That is, the stock prices react favorably to announcements of unexpected dividend increases and unfavorably to unexpected dividend decreases. Also, a positive coefficient for CE is expected, as the market is always greeted with an increase in concurrent earnings.

3.2 Ownership Structure and Stock Price Reaction to Dividend Changes

3.2.1 Hypothesis Development

The second implication of agency cost hypothesis of dividends is the positive relationship between the magnitude of stock price reaction to dividend change announcements and the potential expropriation of minority shareholders. Agency cost theory predicts that the more severe are the large-small shareholder agency conflicts of firms, the more important are dividend payment as a means of agency cost reductions. As a result, those firms with potentially large agency conflicts before announcements should experience larger stock price reaction than do firms with small agency conflicts. In this paper, stockholdings and the degree of divergence between the cash flow and control rights of the largest shareholder are used as the proxies for the potential agency conflicts of firms. The explanation and hypothesized impact of these two variables are as follows.

Stockholdings of the largest shareholder is proxy for the potential expropriation of minority shareholders as the ability to extract private benefit depends on share ownership by the largest shareholder. The higher stockholdings imply the higher ability for the controlling shareholder to extract private benefit from minority shareholder through his/her increased control of firm. Therefore, agency cost hypothesis predicts that the higher stockholdings the largest shareholder possess, the larger potential agency conflicts that associated with the firm and so the more informative of dividend change announcements will become.

The degree of divergence between the cash flow rights and control rights of the largest shareholder is also used to proxy for the potential expropriation of minority shareholders. Several empirical studies have found that the negative effect of control of the largest shareholder is more pronounced if there is a sharp divergence between the cash flow and control rights (Claessens, Djankov, Fan and Lang 2002). The control is enhanced through the use of pyramids, deviation from one-share-one vote rule. As a result, agency cost hypothesis predicts that the larger divergence between the cash flow rights and control rights of the largest shareholder, the higher the potential agency conflicts that are associated with the firm and the more informative the dividend change announcements will become.

To summarize, the second implication of agency cost of dividends predicts that the firm's potential agency conflicts, as proxied by the stockholdings and the degree of divergence between the cash flow and control rights of the largest shareholder, are positively related to the sensitivity of stock price reaction to unexpected dividend changes.

3.2.2 Regression Models

As refers to the excess return regression model that was discussed above

$$CAR = \theta + b_1UD + b_2CE + u \quad (1)$$

where CAR is a measure of the market's reaction to dividend change announcements, UD is an unexpected dividend change and CE is the change in concurrent earnings.

In order to examine the second implication of agency costs of dividends, this paper hypothesizes that the marginal effect of a given unexpected dividend change on stock prices (coefficient b_1) varies with potential agency conflicts of firms. Specifically, the coefficient b_1 is an increasing function of the proxies for the potential agency conflicts of firms before dividend announcements. That is,

$$b_1 = f(\text{major}, O/C) \quad (2)$$

where b_1 is the marginal effect of unexpected dividend changes on stock prices, major is the stockholdings of the largest shareholder and O/C is the ratio of cash flow to control rights of the largest shareholder. A smaller O/C indicates a higher degree of divergence between cash flow and control rights.

3.2.2.1 Linear Functional Form

Firstly, a linear functional form of (2) is introduced in the following

$$b_1 = a_1 + a_2\text{major} + a_3O/C \quad (3)$$

By substituting coefficient b_1 from equation (3) into the regression model (1), one can get

$$CAR = \theta + (a_1 + a_2\text{major} + a_3O/C)UD + b_2CE + u$$

$$CAR = \theta + a_1UD + a_2\text{major}*UD + a_3O/C*UD + b_2CE + u \quad (4)$$

3.2.2.2 Quadratic Functional Form

In addition, some empirical evidence documents the non-monotonicities between ownership concentration and firm's valuation. The entrenchment effect of large shareholder is found to dominate in one specific range of ownership concentration (Morck et al. 1988). If this is the case, the linear functional form of (2) may not be adequate and a quadratic functional form is introduced in this paper. Specifically, this paper hypothesizes a nonlinear relationship between the value of coefficient b_1 and the variable *major* by including squared values of the variable "major". That is,

$$b_1 = a_1 + a_2 \text{major} + a_3 O/C + a_4 \text{major}^2 \quad (5)$$

By substituting coefficient b_1 from equation (5) into the regression model (1), one can get

$$CAR = \theta + (a_1 + a_2 \text{major} + a_3 O/C + a_4 \text{major}^2)UD + b_2 CE + u$$

$$CAR = \theta + a_1 UD + a_2 \text{major} * UD + a_3 O/C * UD + a_4 \text{major}^2 * UD + b_2 CE + u \quad (6)$$

To sum up, the positive relationship between the magnitude of stock price reaction to unexpected dividend changes and the potential agency conflicts of firms in agency cost hypothesis is examined by using model (4) and (6).

3.2.3 Interpretations

If the agency cost hypothesis is supported, one expects to obtain positive coefficient on a_2 . That is, the marginal effect of unexpected dividend changes

on stock prices (coefficient b_1) increases as the shareholdings of the largest shareholder increases. In addition, the agency cost hypothesis predicts a negative coefficient on a_3 . The marginal effect of unexpected dividend changes on stock prices (coefficient b_1) increases as O/C decreases. Furthermore, the statistical significance of coefficient a_4 implies that the marginal effect of an unexpected dividend change on stock prices (coefficient b_1) changes at a nonlinear rate as the stockholdings of the largest shareholder increases.

To summarize, the agency cost hypothesis predicts that if dividends do play an important role in limiting expropriation of minority shareholders by removing corporate wealth from insider control, the empirical evidence should support (I) a positive association between stock price reaction and dividend change announcements; and (II) firms with potentially large agency conflicts before announcements would experience larger stock price reactions than do firms with small agency conflicts.

Chapter 4 Data Description

In this section, the sample criteria and data sources are first summarized. The key variables to be used in the regression models are then outlined.

4.1 Sample Criteria

The construction of the data sample started with all dividend change announcements made by Hong Kong-listed firms in the Stock Exchange of Hong Kong during the sample period 2001 and 2002. Dividend change is defined as relative to the previous year's value. That is, there is a dividend change if the interim (final) dividend per share this year is higher/lower than the interim (final) dividend per share last year. For a dividend change to be included in the sample, the following criteria must be satisfied:

1. Dividend changes are greater than 10 percent.
2. Special dividends or stock dividends or quarterly cash dividends are not issued during the dividend change period or preceding the dividend change period.
3. Firms whose dividends change from a positive number to zero (omission) or from zero to a positive number (initiations) are excluded.
4. Stock splits or stock consolidations do not occur during the dividend change period.
5. In estimating the abnormal returns, firms whose coefficient for market index in the standard market model is not statistically significant at 10

percent level are excluded.

6. The firm is not a financial company.

Restrictions (1)-(4) are commonly adopted by many empirical examinations on the information content of dividends (Denis, Denis, and Sarin, 1994; Lang and Litzenberger, 1989). Restriction (5) is made as an additional screening that eliminates the potential error in the estimation of abnormal returns. It is recognized that the actual daily return of some stocks may deviate drastically from the performance of the market index. In order to ensure that the market equation is generally applicable to the stock in estimating the abnormal returns, those firms that the coefficient for market index is not statistically significant at the 10 percent level would not be used for further analysis. Restriction (6) is used to accommodate for the dividend expectations model in this paper. As dividend expectations model involves accounting data and accounting practices that are different for financial institutions, only dividend announcements made by nonfinancial firms are included.

A total of 391 dividend change announcements fulfill criteria 1-4. The additional screening (5) leaves samples of 251 dividend change announcements. Exclusion of financial firms further excludes 23 dividend announcements. The remaining 228 announcements consist of 114 dividend increases and 114 dividend decreases. The sample selection procedures are reported in Table 1A and B.

4.2 Data Sources

Dividend per share and the announcement dates are collected from the web page of Clearing and Exchange of Hong Kong. Appendix A1 to A8 show the announcement dates and financial years of the sample by year of declaration. The daily stock prices (Datatype = P) and the Datastream market index of Hong Kong (Datatype = TOTMKHK) are obtained from the Datastream International database. Appendix B shows the detailed descriptions of Datatype used in this paper. The data on ownership structures are collected from the Wardleycards, which is a publication of the HSBC Broking (Data Services) Limited. It offers information on the identities and percentage shareholdings of all substantial shareholders of firms listed in Hong Kong.

4.3 Variables

In order to examine empirically the regression model discussed in the previous section, the key variables of interest is a measure of stock price reaction (CAR), unexpected dividend changes (UD), stockholdings of the largest shareholder (major) and the ratio of cash flow to control rights of the largest shareholder (O/C). This section outlines the variables to be used in the regression models for further empirical examination.

4.3.1 Stock Price Reaction

The standard event study methodology and the market model are employed to calculate the abnormal returns around the dividend announcement days. To study the stock price reaction to dividend announcements, this paper estimates that a market model over the period from 114 trading days to 15 days before the announcement ($t = -114$ to $t = -15$), by using Datastream market index of Hong Kong (Datatype = TOTMKHK) as a proxy for the market index. Datastream market index of Hong Kong is used as a proxy for the market index as it approximately included 130 Hong Kong stocks. The abnormal returns 5 days before and 5 days after the announcement days are summed up as the 11-day cumulative abnormal return (CAR) for each announcement.

4.3.2 Unexpected Dividend Changes

In event studies, the stock prices should react only to the unexpected or surprise element in the dividend change. In fact, many empirical studies measure the unexpected change in dividends as the total change in dividends.

However, rather than interpreting all dividend changes as being unexpected, a dividend expectations model is incorporated in this study.

In order to capture the expected change in dividends, all relevant information that is available prior to dividend change announcements are put as the explanatory variables in the dividend expectations model. Any realized dividend changes that cannot be explained by these explanatory variables are then hypothesized as the unexpected component of dividend changes. In other words, the residuals from a dividend expectations model are estimated as the unexpected dividend changes (UD). In the following, the details of dividend expectations model used in this paper are presented.

4.3.2.1 Determinants of Expected Dividend Changes

Dividend change variable (dchange) is measured as dividend change per share relative to the stock price 10 days prior to the announcement. The market's expectation of dividend changes is developed based on the variables that have been suggested by previous studies: firm characteristics, investment opportunities, undistributed cash flow, earnings and leverage. All variables are the information that is available prior to dividend change announcements. The explanation and hypothesized effect of the explanatory variables in the dividend expectations model are described below.

In terms of firm characteristics, the firm size (logmv) and dividend yield (dyield) are well documented to have an effect on dividend changes. Firm size is defined as the natural log of market value of firms. As larger firms are

expected to have less information asymmetry, it implies that large firms are less likely to change dividends as a means to convey information for signaling (Brennan and Hughes, 1991). For the dividend yield, it is measured as the actual dividends in the previous years divided by the stock prices. Since equity values are equal to the present value of future dividends, it is expected that high dividend yield firms tend to increase their dividends at a slower rate than low yield firms (Yooh and Stark 1995).

The proxies for firm's investment opportunities include the growth in fixed asset (gf_{-1}) and total asset (ga_{-1}). It is expected that the greater the firm's growth opportunities, the greater the firm's need to retain earnings to finance capital expenditure, and so the lower the likelihood of dividends to increase (LLSV, 2000).

The proxies for firm's undistributed cash flow include the growth in cash and cash equivalents (gc_{-1}), and the growth in working capital (gw_{-1}). The residual theory states that firms will pay out its free cash flow to shareholders. Firms that announced dividend increases tend to have a higher level of undistributed cash level prior to the events (Lie, 2000). It is expected that the larger the firm's cash flow, the higher the possibility of the firm to pay out its cash flow as dividends.

Earnings (ge_{-1} , gie) are included as one of the determinant of the change in dividends. Lintner (1956) model suggests that most companies appear to have a target payout ratio. Any dividend changes are then the partial adjustment process towards a target ratio as a result of the change in earnings. It implies

that firms tend to increase (decrease) dividends if they experienced significant increases (decreases) in earnings in the year before announcement.

The proxy for leverage is the growth in total liabilities (gl_{-1}). Jensen (1986) suggests that debt and dividends are substitutes. Therefore, a higher leverage may lower the need for dividends to be increased.

4.3.2.2 Dividend Expectations Models

In the following, interim and final dividend expectations models are developed separately.

The interim dividend expectations model is

$$dchange = \alpha + \beta_1 \log mv + \beta_2 dyield + \beta_3 gf_{-1} + \beta_4 ga_{-1} + \beta_5 gc_{-1} + \beta_6 gw_{-1} + \beta_7 ge_{-1} + \beta_8 gl_{-1} + e$$

The final dividend expectations model is

$$dchange = \alpha + \beta_1 \log mv + \beta_2 dyield + \beta_3 gf_{-1} + \beta_4 ga_{-1} + \beta_5 gc_{-1} + \beta_6 gw_{-1} + \beta_7 ge_{-1} + \beta_8 gl_{-1} + \beta_9 gie + e$$

where

$dchange$ = change in dividend per share relative to the stock price 10 days prior to the dividend announcement

$\log mv$ = natural log of market value 10 days prior to the dividend announcement

$dyield$ = dividend yield 10 days prior to the dividend announcement

gf-1 = growth in fixed assets

ga-1 = growth in total assets

gc-1 = growth in cash and cash equivalents

gw-1 = growth in working capital

ge-1 = growth in annual profit before taxation

gl-1 = growth in total liabilities

gie = growth in interim profit before taxation

e = error term

in which -1 is the last fiscal year before dividend change announcements. Table 2 explains the construction of variables. Table 3A and B report summary statistics for the variables used in interim and final dividend expectations models, respectively. As financial periods are different in different firms, it can be noted that company data are collected from different financial years. For instance, for the firms with accounting periods ended on 31 December, their final dividends that declared in sampling period 2001 belong to 2000 fiscal year. All growth variables, for example, the growth in total assets, are calculated as (total assets in 1999 fiscal year – total assets in 1998 fiscal year) / total assets in 1998 fiscal year. In contrast, for firms with accounting periods ended on 31 March, their final dividends that were declared in the sampling period 2001 also belonged to the 2001 fiscal year. The variables of growth in total assets, are then calculated as (total assets in 2000 fiscal year – total assets in 1999 fiscal year) / total assets in 1999 fiscal year.

4.3.2.3 Empirical Results

The cross-sectional ordinary least square regressions (OLS) are employed in the dividend expectations models. The regression results of interim and final dividend expectations models are shown in Table 4A and B, respectively. It is recognized that the linear expectations model is well specified for interim dividend changes but it is not well specified for final dividend changes. After excluding the dependent variables that have small t-statistics, the dividend expectations models are re-estimated and the results of interim and final dividend expectations models are reported in Table 5A and B, respectively.

In interim dividend expectations model, the coefficient for $\log mv$, $dyield$, ga_{-1} , gc_{-1} , ge_{-1} are all statistically significant and have predictable signs. The signs of these independent variables can be explained as follows. The negative coefficient for $\log mv$ may be related to the greater degree of information asymmetry for small firms and the consequent need for dividend signaling. The negative coefficient for $dyield$ is consistent with the idea that there is less room for dividends to be increased if the dividend yield of firm is already high. The negative coefficient for ga_{-1} implies that firms with growth opportunities would pay out fewer dividends, as they have greater need for financing capital expenditure. The positive coefficient for gc_{-1} is consistent with the residual theory of dividend that firms will disgorge the idle cash to shareholders. The positive coefficient for ge_{-1} is consistent with earlier empirical findings that dividend is better to be the lagging indicator of earnings of firms (Benartzi et al, 1997).

For the final dividend expectations model, the coefficients for $dyield$, gc_{-1} , gw_{-1} are statistically significant. The negative coefficient for $dyield$ can be explained by the same reason as in interim dividend expectations model. The positive coefficient for gw_{-1} implies that firms with high liquidity will distribute more cashflow as dividends. The negative coefficient for gc_{-1} is surprising. It may be due to the excess time lag that is incorporated in this model. A large amount of net income is reported as an accounts receivable that has not yet been received, instead of as cash and cash equivalents. Ideally, all information (but not only the growth in interim earnings) that is disclosed in the interim report before final dividend changes should be included in the final dividend expectations model. However, this approach is problematic because the 2000 interim report for most of the firms does not contain balance sheets and cash flow statements.

To conclude, the residuals from these reduced dividend expectations models are measured as the unexpected dividend changes (UD).

4.3.3 Ownership Structure

The stockholdings of the largest shareholder (major) are measured as the percentage shareholdings by the largest shareholder relative to the total number of shares outstanding. If there is a divergence between the cash flow and control rights, the variable major is then measured as the percentage control rights of the largest shareholder. It is important to note that this paper does not distinguish among the shareholder's names and uses one family group as the unit of analysis.

The degree of divergence between the cash flow and control rights of the largest shareholder (O/C) is measured as the ratio of cash flow to control rights of the largest shareholder. Similar to the earlier studies of La Porta Lopez-De-Silanes, and Shleifer (1999) mentioned above, the data on cash flow and control rights is obtained by tracing the ultimate ownership of each firm.

For example, Mr. Ng Teng Fong is the largest shareholder of Sino Land. Pyramiding potentially induces a wedge between cash flow and his control rights. It works in the following manner: Mr. Ng Teng Fong owns 71.72 percent of the stock of Tsim Sha Tsui Properties, which in turn has 52.72 percent of the stock of Sino Land. If we look at control rights, we would say that Mr. Ng Teng Fong controls 52.72 percent of Sino Land (i.e. the weakest link in the chain of voting rights). In contrast, we would say that Mr. Ng Teng Fong owns about 37.81 percent of the cash flow rights of Sino Land (i.e. the product of the two ownership stakes along the chain). The cash flows rights to control rights ratio (O/C) of Sino Land is calculated as 37.81 percent / 52.72 percent. That is, the O/C ratio of Sino Land is 0.72.

4.3.3.1 Centering

A scale transformation is a rescaling by adding or subtracting constants from variables. Such a transformation is also referred to as centering. It is well documented that centering has no effect on regression coefficient (and t-statistics) of the interaction terms. Instead, it introduces some of the desirable properties of centered data. Firstly, centering variables often help minimize the problems of multicollinearity (see Marquardt, 1980). Secondly, centering can

render more meaningful interpretations of the regression coefficient for UD. Therefore, variables “major” and “O/C” are centered in the regression model. Specifically, it performs an additive transformation on the percentage shareholdings (major) by subtracting the mean shareholdings from each observation. This paper also performs an additive transformation on cash flow to control rights (O/C) by subtracting the median ratio of cash flow to control rights from each observation.

Chapter 5 Descriptive Statistics

This section is divided into two parts. In the first part, it reports summary statistics on some key variables used in the subsequent regression analysis. Table 6 summarizes the construction of variables. Table 7 shows the mean and standard deviation of all relevant variables. In the second part, two limitations associated with the construction of variables are outlined.

5.1 Summary Statistics

5.1.1 Cumulative Abnormal Return (CAR)

Table 8A presents some basic statistics on cumulative abnormal returns for each of the four partitions of the sample: concurrent earnings increase, positive dividend surprise (CE+UD+); concurrent earnings increase, negative dividend surprise (CE+UD-); concurrent earnings decrease, positive dividend surprise (CE-UD+); concurrent earnings decrease, negative dividend surprise (CE-UD-). The average cumulative abnormal returns (CAR) for (CE+UD+) and (CE-UD-) are both significantly different from zero. Table 8B shows the pattern of average cumulative abnormal returns over the event window.

5.1.2 Stockholdings (major)

The average percentage shareholding by the largest shareholder is 48.59%, with a standard deviation of 15.45. This indicates that the ownership is highly concentrated in Hong Kong, with a single shareholder or family group which

has the majority ownership in most of the listed companies in Hong Kong. Table 9A shows percentage shareholdings by type of the largest shareholder, classified by individuals, corporations and state. The largest shareholder is “individual” according for 164 of 228 observations (71.93%), followed by “corporations” with 50 observations (21.93%). The category “state” accounts for 14 observations (6.14%), it in which are mostly PRC state-owned enterprises or corporations that are controlled by municipal governments in mainland China. The average percentage shareholdings by each type of the largest shareholder is the smallest for individuals (46.80 %), compared with 51.87% for corporations and 59.47% for the state respectively.

5.1.3 Ratio of Cash Flow to Control Rights (O/C)

The mean ratio of cash flow to control rights of the largest shareholder is 0.921. It implies that on average, 1% of cash flow rights “buy” 1.086 % of control rights for the largest shareholder. Table 9B shows that the mean ratio of cash flow to control rights by each type of the largest shareholder is the lowest for individuals (0.911). Earlier literature of Claessens, Djankov, Fan and Lang (2002) investigated the differences in the concentration of cash flow and control rights across the nine East Asian countries including Hong Kong. They found that the mean ratio of cash flow to control rights of 330 corporations in Hong Kong is 0.882. Compared with their empirical findings, the O/C ratio that is obtained in this paper is rather high. This may be due to the fact that the number of firms in our sample is much smaller (136 firms, 228 observations) and there are relatively fewer firms that are controlled through pyramids and other controlled-enhanced mechanisms.

5.2 Limitations

There are two limitations that are associated with the construction of variables.

Firstly, the change in concurrent earnings (CE) is measured as announced change in earnings divided by the market value of firm. With the same reason for the announcements of dividend changes, only the unexpected change in earnings should affect stock prices in the event studies. Thus, the announced change in earnings is proxy for the earning surprise in this paper. This proxy to a certain extent is unrealistic, as it assumes that investors expect earnings will remain the same as in the previous year.

Secondly, the variables of ownership structure are constructed by using the latest ownership data in the day of data collection. Ideally, the variables of ownership structures should be constructed by using the ownership data that is available before dividend announcements. However, as Wardleycards are updated weekly, it is difficult to check the ownership data exactly before the date of dividend declaration.

Chapter 6 Empirical Analysis

In this paper, the cross-sectional ordinary least square regression (OLS) is the major tool to examine model (1), (4), (6) as discussed above. Appendix C shows the complete dataset. This section consists of two parts. In the first part, the results of the hypothesized regression models are presented. In the second part, in order to check the robustness of the findings, the sensitivity tests are conducted and results are reported.

6.1 Regression Results

6.1.1 Stock Price Reaction to Dividend Change Announcements

Table 10 shows the estimation results of model (1) with White heteroskedasticity consistent standard errors. The estimated coefficient for dividend surprises is positive and statistically significant (p-value = 0.034). This result suggests that dividend surprises have information content and can induce abnormal stock returns. This is consistent with the claim that favorable (unfavorable) dividend surprises are associated with increases (decreases) in stock prices in agency cost hypothesis. The coefficient for change in concurrent earning is also statistically significant (p-value = 0.036).

6.1.2 Effects of Ownership Structure on Stock Price Reaction

Table 11 shows the estimation results of model (4) with White heteroskedasticity consistent standard errors. The estimated coefficient for the interaction term major*UD is positive and statistically significant ($p\text{-value} = 0.068$), suggesting that the higher the percentage shareholdings held by the largest shareholder, the greater the marginal effect of unexpected dividend changes on stock prices. Specifically, for every 1 percent that the shareholdings by the largest shareholder increase, the marginal effect of unexpected dividend changes on stock prices increase by 0.117 percent. This result is consistent with agency cost hypothesis that the larger the stockholdings of the controlling shareholder, the larger the potential agency conflicts and so the more informative are dividend change announcements. In other words, the sensitivity of stock price reaction to unexpected dividend changes is positively related to the percentage shareholdings by the largest shareholder.

The estimated coefficient for the interaction term O/C*UD is negative and statistically significant ($p\text{-value} = 0.057$), indicating that the larger the divergence between the cash flow to control rights (lower O/C ratio) of the largest shareholder, the larger the marginal effect of unexpected dividend changes on stock prices. It is consistent with agency cost hypothesis, saying that the larger the divergence between the cash flow and control rights, the larger the potential agency conflicts and so the more informative are dividend change announcements. To put it another way, the sensitivity of stock price reaction to unexpected dividend changes is positively related to the degree of divergence between the cash flow and the control rights of the largest

shareholder.

As variables “major” and “O/C” are centered in the regression, the coefficient a_1 represents the regression of UD on CAR where major equals its mean (major = 48.59 percent) and O/C equals its median (O/C = 1). We can interpret this as the “average” of the marginal effect of unexpected dividend changes on stock prices and the coefficient a_1 is statistical significant (p-value = 0.041). Also, coefficient for CE is positive and but is statistical insignificant.

To summarize, these results support the agency cost hypothesis. Firms with potentially large agency conflicts would experience larger stock price reactions than firms with small agency conflicts. We can also conclude that the unexpected dividend change is the most informative if the percentage shareholdings by the largest shareholder is large and the O/C ratio is small. This is because in this situation, the potential large-small shareholder conflict associated with the firm is the largest.

6.1.3 Non-Linear Ownership Effects on Stock Price Reaction

Table 12 shows the results of model (6) with White heteroskedasticity consistent standard errors. Coefficient for UD (p-value = 0.000), major*UD (p-value = 0.043) and O/C*UD (p-value = 0.038) have exactly the same signs as in model (4), and are all statistically significant. The coefficient for change in concurrent earning is also statistically significant (p-value = 0.052).

The non-linear ownership effects on stock price reaction to dividend changes, which are reflected by coefficient a_4 , are negative and statistically significant (p-value = 0.030). The negative coefficient for the interaction term major^2*UD implies that the influence of major has an inverted-U shape: the marginal effect of dividend changes on stock prices first increases with the percentage shareholdings by the largest shareholder and reaches a maximum at 61.98 percent (centered major = 13.39). Thereafter, the marginal effect of dividend changes on stock prices starts to fall. Also, it can be noted that the significance level of all explanatory variables (and so the adjusted R-square) increases pronouncedly in model (6), as compared with in model (4). It implies that the non-linear ownership effect on stock price reaction to unexpected dividend changes is strongly supported by evidence.

The non-linear ownership effects on stock price reaction to unexpected dividend changes can be explained as follows. Initially a rise in percentage ownership implies the higher ability for the largest shareholder to extract private benefit from minority shareholder through his/her increased control of the firm. By this reasoning, the potential large-small shareholder conflict is

more severe and the marginal effect of dividend changes on stock prices increases. However, after the percentage shareholdings reach a certain high level, the entrenchment effect of the largest shareholder diminishes and incentive effect starts to dominate the entrenchment effect. It is the case that if the controlling stakes of the largest shareholder are substantially large, he/she would also suffer from a great loss of wealth associated with the firm when he/she runs the firm improperly. Hence, the potential large-small shareholders conflict would be less severe and the marginal effect of dividend changes on stock price starts to decline. This result is consistent with the previous findings of Morck et al. (1988), which states the nonlinearity relationship between management ownership concentration and firm valuation.

6.2 Sensitivity Tests

A particular concern for this study is that the unexpected dividend changes (UD) are first estimated in a dividend expectations model and the two-step approach may produce estimates that lead to incorrect inference. Sensitivity tests are performed to re-estimate the dividend expectations model and calculate the correct second-step covariance matrix following Murphy-Topel (1985) procedure. In general, the results corroborate the findings reported in Tables 10-12.

6.2.1 Two-Step Estimation Problem

In this paper, the dividend expectations model is first estimated by OLS. The residuals from a dividend expectations model are then used as proxies for dividend surprises (UD) in the regression models (1), (4), (6) that are also estimated by OLS. In other words, the second stage involves estimating a model containing generated regressors. The econometric implications of the so-called generated regressor problem have been studied by many researchers. As Pagan (1984) suggested, while this two-step approach does not affect consistency, it may bias the second-step covariance matrix and so the estimated standard error. Empirical researchers generally tackle this problem by proposing two different procedures. One could estimate the first and second step models jointly by using full information maximum likelihood (FIML). Alternatively, one could calculate the correct asymptotic covariance matrix for the two-step estimation procedure.

As Greene (2000) suggested, there are at least two reasons that FIML may be less attractive than the implementation of two-step estimation with corrected covariance matrix. First, it may be difficult to derive the proper joint distribution for the econometric models. Second, FIML estimation is computationally demanding. Based on these ideas, this paper continues to rely upon the two-step procedure and calculate the correct covariance matrix in the second step following the suggestions by Murphy and Topel (1985).

6.2.2 Regression Results With Corrected Covariance Matrix

In order to accomplish the correction of covariance matrix in the second step, the dividend expectations model is re-estimated (pooling both the interim and final dividend changes) and the results are shown in Table 13. The residuals from a dividend expectations model are then put as the generated regressors in the second step OLS regression model and the regression results with corrected covariance matrix are reported in Table 14.

Table 14 shows the regression results of model (1), (4), (6) that are estimated with and without the Murphy-Topel (1985) procedure to provide an estimate of the bias in the t statistics when the correct procedure is not carried out. Unambiguously, the uncorrected two-step estimation procedure overestimates the t-ratios of the second-step estimates. However, none of the basic conclusions would have been altered as a result of this upward bias. In all of the models, the significance level of the various explanatory variables is identical under both estimation procedures.

To summarize, the implementation of two-step estimation with corrected covariance matrix gives similar regression results. The adjusted t-ratios of the second-step estimates decline slightly. These results suggest that the potential bias in estimating standard errors under two-step estimation approach has not affected the reliability of the regression results.

Chapter 7 Discussion and Relation to Prior Literature

As there are a number of studies investigating the expropriation of minority shareholders in the recent years, it is useful to consider how the results can be related to previous research. In fact, the results to some degree provide support for the substitution hypothesis (LLSV, 2000) and the notion of market force.

This paper has found evidence that the capital market attaches a higher value to the firms that increase their dividends, since the increase in dividends is the commitment of the controlling shareholder not to use the retained earnings at their discretion. In contrast, the market attaches a lower value to the firms that reduce their dividends, as the reduction in dividends potentially implies the higher risk of expropriation by the controlling shareholders. Therefore, in order to sustain their firm's valuation and future access to capital, management will refrain from expropriation of minority shareholders.

This argument is especially applicable to families that are frequently regarded as repositories for reputation. As suggested by Bebchuk et al (1998), since family pyramids tend to grow gradually through the generation of internal capital and the issuance of minority stock, family controllers may then have the incentive to pre-commit and pay out more dividends to assure continued growth for the benefit of their offspring.

The results of this paper are also in line with the earlier research of Faccio, Lang and Young (2001). They document that substitution hypothesis is

supportive in Western European, where firms are tightly affiliated to a business group. They argue that this is probably because the market participants are alert to potential expropriation by firms that are tightly affiliated to a business group. As a result, they would demand higher dividend payouts. The same logic can be used to explain the findings in this paper. Compared with other East Asian countries like Indonesia and Thailand, the capital market in Hong Kong is more transparent and mature. The market participants in Hong Kong are alert to potential expropriation by the controlling shareholders. As a result, by attaching a higher (lower) market value for the firms that increase (decrease) dividends, market force is effective in limiting the expropriation by the controlling shareholders.

In other words, the results provide evidence that the effectiveness of the market forces in fact, critically depends on whether the capital market is transparent or not. As indicated by the Coase Theorem (1961), it is sufficient to have a well-regulated, transparent financial market in order to ensure the market force to work well. Hence, the findings highlight the importance of further reforms and the increased transparency of capital market in Hong Kong.

Chapter 8 Conclusion

In the neo-classical world of MM (1961), dividend policy is irrelevant to firm value. However, frictionless world does not exist in reality and a host of theories have been put forward to explain why dividends do matter. This paper provides support for one predominant explanation of information content of dividends—agency cost theory of dividends. By using data from a sample of 228 dividend change announcements of Hong Kong-listed firms over the period 2001-2002, the cross-sectional regression results show that there is (I) a positive association between stock price reaction and dividend change announcements; and (II) firms with potentially large agency conflicts before announcements would experience larger stock price reactions than do firms with small agency conflicts. Specifically, by using shareholdings and the degree of divergence between the cash flow and control rights of the largest shareholder as the proxies for the potential agency conflicts of firm, this paper has found a positive association between the potential large-small shareholders conflict and the magnitude of stock price reaction to unexpected dividend changes. Overall, the empirical results provide evidence that pro-rata dividends do play a critical role in mitigating agency conflicts by removing corporate wealth from insider control in Hong Kong.

The results have also shed light on the issue of expropriation of minority shareholders in Hong Kong. This paper shows the effects of market forces in limiting expropriation by attaching a higher (lower) market value for the firms that increase (decrease) dividends. It implies that market participants in Hong Kong are alert to potential expropriation by the controlling shareholder. This

result also highlights the importance of further reforms and the increased transparency of capital markets in order to ensure that market forces work well.

Table 1A**Number of dividend change announcements by sample selection criteria**

Selection criteria	Number of dividend changes
Dividend change announcements by firms listed on the SEHK	733
1. Less dividend changes less than 10 percent	(39)
2. Less special or stock dividends or quarterly dividends	(65)
3. Less dividend omissions and initiations	(222)
4. Less stock splits or stock consolidations	(16)
5. Less firms that coefficient for market index is statistically insignificant at the 10 percent level	(140)
6. Less financial firms	(23)
Total dividend change announcements included in the sample	228

Table 1B**Number of dividend change announcements by year**

Year	Number of dividend change announcements			
	Interim		Final	
	Increase	Decrease	Increase	Decrease
2001	24	29	37	29
2002	29	26	24	30
Total	53	55	61	59

Table 2 Definitions of variables used in dividend expectations model

Variable	Definition	Source
dchange	is the change in dividends. $dchange = [\text{dividend per share of current year} - \text{dividend per share of previous year}] / \text{stock price}$ (Datastream Datatype = P) 10 days prior to the dividend announcement.	Web page of Clearing and Exchange of Hong Kong
stage	equals 1 if the firm changes its dividend at the final stage and zero if the firm changes the dividend at the interim stage.	
logmv	is the natural logarithm of the market value (Datastream Datatype = MV) 10 days prior to the dividend announcement.	Datastream International database
dyield	is the dividend yield (Datastream Datatype = dyield) 10 days prior to the dividend announcement.	
gf-1	is the growth in fixed assets as of the last financial year prior to the dividend announcement.	Company's annual report
ga-1	is the growth in total assets as of the last financial year prior to the dividend announcement.	
gc-1	is the growth in total cash and cash equivalents as of the last financial year prior to the dividend announcement.	
gw-1	is the growth in working capital as of the last financial year prior to the dividend announcement. Working capital is calculated as [current assets - current liabilities].	
ge-1	is the growth in annual earnings as of the last financial year prior to the dividend announcement. Earnings are defined as the profit before taxation.	
gl-1	is the growth in total liabilities as of the last financial year prior to the dividend announcement.	
gie	is the growth in interim earnings as of the last financial year prior to the dividend announcement. Earnings are defined as the profit before taxation.	

Table 3A**Summary statistics for variables used in interim dividend expectations model**

Variable	Mean	Standard Deviation
dchange	-.5645236	2.216563
logmv	3.244809	.7221276
dyield	6.274074	5.242471
gf-1	.252404	1.213837
ga-1	.1622613	.3815341
gc-1	.36471	1.768718
gw-1	-.7483725	13.41857
ge-1	.078929	1.03148
gl-1	.2475368	1.386744

Table 3B**Summary statistics for variables used in final dividend expectations model**

Variable	Mean	Standard Deviation
dchange	-.2528173	2.00064
logmv	3.253618	.7160291
dyield	4.774917	2.828356
gf-1	.2573244	1.131873
ga-1	.1914533	.3513677
gc-1	.9332823	4.440548
gw-1	4.09405	39.53278
ge-1	.8074239	4.623695
gl-1	.8035838	6.612749
gie	-.7890965	12.74201

Table 4A**Regression results of interim dividend expectations model**

Interim dividend expectations model			
Independent variable	Coefficient	t-ratio	p-value
Intercept	3.129358 *** (.8920761)	3.51	0.001
logmv	-.4414564 * (.2308213)	-1.91	0.059
dyield	-.3484184 *** (.0313852)	-11.10	0.000
gf-1	-.2239062 (.3482079)	-0.64	0.522
ga-1	-.9302372 (.8562561)	-1.09	0.280
gc-1	.1574705 * (.0941508)	1.67	0.098
gw-1	.0023764 (.0108223)	0.22	0.827
ge-1	.3462287 ** (.1397187)	2.48	0.015
gl-1	.1981093 (.3961478)	0.50	0.618
Dependent variable	dchange		
Number of observations	108		
R-square	0.6125		
Adjusted R-square	0.5812		

Model: $dchange = \alpha + \beta_1 \logmv + \beta_2 dyield + \beta_3 gf-1 + \beta_4 ga-1 + \beta_5 gc-1 + \beta_6 gw-1 + \beta_7 ge-1 + \beta_8 gl-1 + e$

Definitions and notations of the variables are given in Table 2.

Standard errors are in parentheses.

*, **, *** significant at the 10, 5, 1 percent level respectively (two-tailed test).

Table 4B**Regression results of final dividend expectations model**

Final dividend expectations model			
Independent variable	Coefficient	t-ratio	p-value
Intercept	2.289368** (1.037428)	2.21	0.029
logmv	-.2462904 (.2516015)	-0.98	0.330
dyield	-.3399822 *** (.0647363)	-5.25	0.000
gf-1	.0524897 (.1968065)	0.27	0.790
ga-1	-.7069768 (.698064)	-1.01	0.313
gc-1	-.087705 ** (.0398385)	-2.20	0.030
gw-1	.0193826 *** (.0045601)	4.25	0.000
ge-1	.0122854 (.0348532)	0.35	0.725
gl-1	.0071556 (.0267108)	0.27	0.789
gie	.0111359 (.0126113)	0.88	0.379
Dependent variable	dchange		
Number of observations	120		
R-square	0.3048		
Adjusted R-square	0.2480		

Model: $dchange = \alpha + \beta_1 \logmv + \beta_2 dyield + \beta_3 gf-1 + \beta_4 ga-1 + \beta_5 gc-1 + \beta_6 gw-1 + \beta_7 ge-1 + \beta_8 gl-1 + \beta_9 gie + e$

Definitions and notations of the variables are given in Table 2.

Standard errors are in parentheses.

*, **, *** significant at the 10, 5, 1 percent levels, respectively (two-tailed test).

Table 5A**Regression results of reduced interim dividend expectations model**

Reduced interim dividend expectations model			
Independent variable	Coefficient	t-ratio	p-value
Intercept	3.127656*** (.8639022)	3.62	0.000
logmv	-.4492268** (.2252664)	-1.99	0.049
dyield	-.348566*** (.0306599)	-11.37	0.000
ga-1	-.8525131** (.3746185)	-2.28	0.025
gc-1	.1747105** (.0793823)	2.20	0.030
ge-1	.3422811** (.1377838)	2.48	0.015
Dependent variable	dchange		
Number of observations	108		
R-square	0.6106		
Adjusted R-square	0.5915		

Model: $dchange = \alpha + \beta_1 \logmv + \beta_2 dyield + \beta_4 ga-1 + \beta_5 gc-1 + \beta_7 ge-1 + e$

Definitions and notations of the variables are given in Table 2.

Standard errors are in parentheses.

*, **, ***significant at the 10, 5, 1 percent levels, respectively (two-tailed test).

Table 5B**Regression results of reduced final dividend expectations model**

Reduced final dividend expectations model			
Independent variable	Coefficient	t-ratio	p-value
Intercept	1.226181*** (.308173)	3.98	0.000
dyield	-.3077419*** (.0562378)	-5.47	0.000
gc-1	-.0920559** (.0384668)	-2.39	0.018
gw-1	.018651*** (.004324)	4.31	0.000
Dependent variable	dchange		
Number of observations	120		
R-square	0.2873		
Adjusted R-square	0.2688		

Model: $dchange = \alpha + \beta_2 dyield + \beta_5 gc-1 + \beta_6 gw-1 + e$

Definitions and notations of the variables are given in Table 2.

Standard errors are in parentheses.

*, **, ***significant at the 10, 5, 1 percent levels, respectively (two-tailed test).

Table 6**Definitions of variables used in regression models (1), (4), (6)**

Variable	Definition	Source
CAR	is the cumulative abnormal return obtained by summing the abnormal returns over 11 days, day -5 and +5.	N/A
UD	is the unexpected dividend changes. It is the residual from the reduced dividend expectations model.	
major	is the percentage shareholdings by the largest shareholder relative to the total number of shares outstanding. If there is a divergence between the cash flow and control rights, the variable major is then measured as the percentage control rights of the largest shareholder.	Wardleycards
O/C	is the ratio of ownership rights to control rights owned by the largest shareholder.	
CE	is the change in concurrent earnings. $CE = [\text{earnings of current year} - \text{earnings of previous year}] / \text{market value (Datastream Datatype = MV)}$ 10 days prior the dividend announcement.	Company's annual report

Table 7**Summary statistics for variables used in regression models (1), (4), (6)**

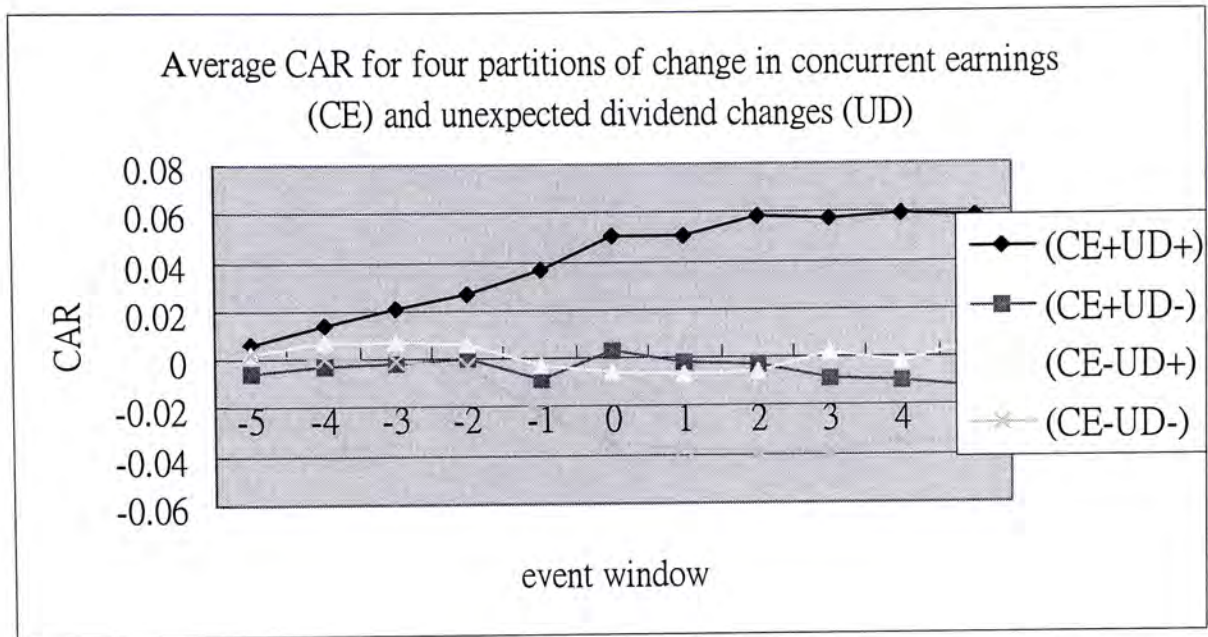
Variable	Mean	Median	Standard Deviation	Min	Max
CAR	.0016546	-.0034234	.0994588	-.2754446	.4417419
Positive UD	1.260645	.9287180	1.180238	.0501224	6.034481
Negative UD	-.9674729	-.7207827	1.006260	-.0004855	-7.021051
UD	-3.30e-07	-.1431493	1.548334	-7.021051	6.034481
major	48.58614	51.57	15.44695	7.8	89.16
O/C	.9214618	1	.1991879	.0868755	1
CE	-.0242838	-.0044514	.1746031	-1.404265	.8758001

Table 8A**Basic statistics on average cumulative abnormal returns**

		Unexpected Dividend Changes (UD)	
		Positive	Negative
Concurrent Earnings (CE)			
Increase	CAR	.0581536	-.0130623
	test-statistics	(5.69) ***	(-1.015)
	No. observations	63	47
Decrease	CAR	.0060382	-.0352424
	test-statistics	(0.516)	(-3.76) ***
	No. observations	36	82

Four partitions of concurrent earnings and dividend surprise: concurrent earnings increase, positive dividend surprise (CE+UD+); concurrent earnings increase, negative dividend surprise (CE+UD-); concurrent earnings decrease, positive dividend surprise (CE-UD+); concurrent earnings decrease, negative dividend surprise (CE-UD-).

***significant at the 1 percent levels (two-tailed test).

Table 8B**The pattern of average cumulative abnormal returns over event window**

	(CE+UD+)	(CE+UD-)	(CE-UD+)	(CE-UD-)
Event window	CAR	CAR	CAR	CAR
-5	0.005812	-0.0056581	0.0023182	0.0025352
-4	0.0139677	-0.0027648	0.0068381	-0.0002182
-3	0.0205116	-0.0022969	0.0067989	-0.0006738
-2	0.0264441	8.215E-05	0.005899	-0.0023727
-1	0.0365795	-0.0084207	-0.0023542	-0.0222361
0	0.0500093	0.0033721	-0.0062416	-0.0349846
1	0.0508161	-0.0013666	-0.0066748	-0.0375241
2	0.0580559	-0.0024056	-0.0060548	-0.0393524
3	0.0570203	-0.0086606	0.0016789	-0.0395705
4	0.0592917	-0.0093832	-0.0022544	-0.0346956
5	0.0581536	-0.0130624	0.0060383	-0.0352425

Four partitions of concurrent earnings and dividend surprise: concurrent earnings increase, positive dividend surprise (CE+UD+); concurrent earnings increase, negative dividend surprise (CE+UD-); concurrent earnings decrease, positive dividend surprise (CE-UD+); concurrent earnings decrease, negative dividend surprise (CE-UD-)

Table 9A**Number of observations by largest shareholder categories**

Largest shareholder	Number of observations	Percentage of observations
Individuals	164	71.93
Corporation	50	21.93
State	14	6.140
Total	228	100

Table 9B**Summary statistics on ownership structure by largest shareholder categories**

<i>Individuals</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Min</i>	<i>Max</i>
Major	46.79524	15.94296	7.8	79.6
O/C	0.91136	0.199139	0.13	1
<i>Corporation</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Min</i>	<i>Max</i>
Major	51.8708	12.58737	23.34	89.16
O/C	0.93982	0.220968	0.087	1
<i>State</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Min</i>	<i>Max</i>
Major	59.465	10.53379	39.45	76.14
O/C	1	0	1	1

Table 10
Regression results of model (1)

Model (1)			
Independent variable	Coefficient	t-ratio	p-value
Intercept	.0033413 (.0064268)	0.520	.60364
UD	.0178994 ** (.0083953)	2.132	.03408
CE	.0694597 ** (.033056)	2.101	.03673
Dependent variable	CAR		
Number of observations	228		
R-square	0.1011		
Adjusted R-square	0.0931		

Model: $CAR = \theta + b1UD + b2CE + u$

Definitions and notations of the variables are given in Table 6.

White heteroskedasticity-consistent standard errors are in parentheses.

*, **, ***significant at the 10, 5, 1 percent levels, respectively (two-tailed test).

Table 11
Regression results of model (4)

Model (4)			
Independent variable	Coefficient	t-ratio	p-value
Intercept	-.0021858 (.0060420)	-0.362	.71787
UD	.0145321** (.0070749)	2.054	.04114
major*UD	.0011728 * (.00064070)	1.831	.06850
O/C*UD	-.0489529* (.025620)	-1.911	.05732
CE	.0526947 (.032071)	1.643	.10178
Dependent variable	CAR		
Number of observations	228		
R-square	0.1708		
Adjusted R-square	0.1560		

Model: $CAR = \theta + a_1UD + a_2major*UD + a_3O/C*UD + b_2CE + u$

Definitions and notations of the variables are given in Table 6.

White heteroskedasticity-consistent standard errors are in parentheses.

*, **, ***significant at the 10, 5, 1 percent levels, respectively (two-tailed test).

Table 12
Regression results of model (6)

Model (6)			
Independent variable	Coefficient	t-ratio	p-value
Intercept	-.002705 (.0059705)	-.453	.65094
UD	.0226681 *** (.0053089)	4.270	.00003
major*UD	.0009589 ** (.00047244)	2.030	.04359
O/C*UD	-.0499755 ** (.024045)	-2.078	.03882
major ² *UD	-.0000358 ** (.00001646)	-2.174	.03073
CE	.0565612* (.028976)	1.952	.05219
Dependent variable	CAR		
Number of observations	228		
R-square	0.1948		
Adjusted R-square	0.1767		

Model: $CAR = \theta + a_1UD + a_2major*UD + a_3O/C*UD + a_4major^2*UD + b_2CE + u$

Definitions and notations of the variables are given in Table 6.

White heteroskedasticity-consistent standard errors are in parentheses.

*, **, *** significant at the 10, 5, 1 percent levels, respectively (two-tail test).

Table 13
Regression results of dividend expectations model (interim and final dividend)

Dividend expectations model			
Independent variable	Coefficient	t-ratio	p-value
Intercept	2.5216*** (.68577)	3.677	.00030
logmv	-0.26623 (.16942)	-1.571	.11754
dyield	-0.33858*** (.029696)	-11.402	.00000
gf-1	-0.12471 (.13318)	-0.936	.35010
ga-1	-0.22525 (.44749)	-0.503	.61521
gc-1	-0.050996 (.034633)	-1.472	.14234
gw-1	0.015799*** (.0038887)	4.063	.00007
ge-1	0.012043 (.011680)	1.031	.30364
gl-1	-0.0020182 (.024007)	-0.084	.93308
stage	-0.22227 (.22115)	-1.005	.31598
Dependent variable	dchange		
Number of observations	228		
R-square	0.4329		
Adjusted R-square	0.4095		

Model: $dchange = \alpha + \beta_1 \logmv + \beta_2 dyield + \beta_3 gf-1 + \beta_4 ga-1 + \beta_5 gc-1 + \beta_6 gw-1 + \beta_7 ge-1 + \beta_8 gl-1 + \beta_9 stage + e$

Definitions and notations of the variables are given in Table 2.

Standard errors are in parentheses.

*, **, ***significant at the 10, 5, 1 percent levels, respectively (two-tailed test).

Table 14**Regression results of models (1), (4), (6) with corrected covariance matrix**

Model (1): $CAR = \theta + a_1UD + b_2CE + u$			
Independent variable	Coefficient	Original t	Corrected t
Intercept	.0033372	0.520	0.498
UD	.017733	2.129**	2.117**
CE	.069300	2.055**	2.049**
Adjusted R-square	0.0954		

Model (4): $CAR = \theta + a_1UD + a_2major*UD + a_3O/C*UD + b_2CE + u$

Independent variable	Coefficient	Original t	Corrected t
Intercept	-.0026727	-0.432	-0.420
UD	.015115	2.136**	2.107**
major*UC	.0011806	1.837*	1.781*
O/C*UD	-.046862	-1.835*	-1.804*
CE	.051356	1.657	1.651
Adjusted R-square	0.1618		

Model (6): $CAR = \theta + a_1UD + a_2major*UD + a_3O/C*UD + a_4major^2*UD + b_2CE + u$

Independent variable	Coefficient	Original t	Corrected t
Intercept	-.0036473	-0.599	-0.560
UD	.023101	4.071***	4.055***
major*UD	.0009973	2.145**	2.034**
O/C*UD	-.049915	-2.150**	-2.093**
major ² *UD	-.0000359	-2.159**	-2.087**
CE	.054641	1.946*	1.931*
Adjusted R-square	0.1850		

Corrected t-ratios are adjusted following Murphy and Topel (1985) procedure. Let V and V^* be the estimated and corrected covariance matrix, respectively. Murphy and Topel (1985) show that $V^* = V(1 + \lambda^2 \sigma_1^2 / \sigma_2^2)$, where λ is the coefficient estimate of the generated regressor from the second-step regression, σ_1^2 and σ_2^2 are the estimated error variances from the first and second-step models, respectively. The correction is assumed that the error terms of the first and second step regressions are independent. Significance levels are based on White-adjusted t-statistics. *, **, *** significant at the 10, 5, 1 percent levels, respectively (two-tailed test).

Appendix A1

Interim dividend increase announcements in sampling period 2001

Company Name	Type	Previous Year	This Year	Declaration Date	Financial Year
ASM PACIFIC	C	30 cents	36 cents	23/7/2001	31/12/2001
BRIGHT INTL	I	7 cents	8 cents	28/8/2001	31/12/2001
BRILLIANCE CHINA	S	0.3 cent	0.4 cent	5/9/2001	31/12/2001
CHINA RARE EARTH	I	1 cent	2 cents	10/9/2001	31/12/2001
CHINA RES ENTREP	C	6 cents	8 cents	18/9/2001	31/12/2001
CHINA TRAVEL INTL	S	1 cent	5 cents	21/8/2001	31/12/2001
COFCO INTL	S	3 cents	4 cents	25/9/2001	31/12/2001
COSCO PACIFIC	C	8.2 cents	9.5 cents	6/9/2001	31/12/2001
COSLIGHT TECH	I	2 cents	2.6 cents	24/9/2001	31/12/2001
ELEC & ELTEK INTL	C	2 cents	3 cents	6/2/2001	30/6/2001
ESPRIT HOLDINGS	I	3.8 cents	4.8 cents	1/3/2001	30/6/2001
FOUNTAIN SET	I	3.5 cents	4.5 cents	18/5/2001	31/8/2001
GUOCO GROUP	C	15 cents	20 cents	16/3/2001	30/6/2001
HANG LUNG PROP	I	10 cents	11 cents	2/3/2001	30/6/2001
IMI GLOBAL	I	0.6 cent	0.7 cent	28/11/2001	31/3/2002
KIN YAT HDG	I	2.5 cents	3 cents	14/12/2001	31/3/2002
KOWLOON MTRBUS	I	33 cents	40 cents	13/9/2001	31/12/2001
LEGEND GROUP	C	1.1 cents	1.5 cents	7/11/2001	31/3/2002
LI & FUNG	I	7 cents	8 cents	20/8/2001	31/12/2001
SHANGHAI INDL	C	11 cents	14 cents	3/9/2001	31/12/2001
TECHTRONIC INDS	I	4 cents	4.5 cents	3/9/2001	31/12/2001
TEXWINCA HDG	I	6 cents	8 cents	18/12/2001	31/3/2002
TIANJIN DEVELOP	S	3.5 cents	4 cents	12/9/2001	31/12/2001
TPV TECHNOLOGY	I	1.638 cents	2.028 cents	6/9/2001	31/12/2001

Type: type of the largest shareholder, classified by individuals (I), corporation (C) and state (S).

Appendix A2

Interim dividend decrease announcements in sampling period 2001

Company Name	Type	Previous Year	This Year	Declaration Date	Financial Year
AUTOMATED SYS	I	3 cents	2 cents	8/11/2001	31/3/2002
CATHAY PACIFIC	I	20 cents	12.5 cents	8/8/2001	31/12/2001
CHEVALIER INTL	I	2.5 cents	2 cents	18/12/2001	31/3/2002
CHINA EVERBRIGHT	C	5 cents	3.6 cents	4/9/2001	31/12/2001
CHINA-HK PHOTO	I	4 cents	2.5 cents	11/12/2001	31/3/2002
CHOW SANG SANG	I	6 cents	3 cents	30/8/2001	31/12/2001
CHUN WO HDG	I	1 cent	0.5 cent	19/12/2001	31/3/2002
DAIWA ASSOCIATE	I	5 cents	2 cents	10/12/2001	31/3/2002
GLORIOUS SUN	I	3.3 cents	2.7 cents	18/12/2001	31/3/2002
GREAT EAGLE HDG	I	10 cents	7 cents	11/9/2001	31/12/2001
K WAH CONMATERIALS	I	2.5 cents	1.5 cents	18/9/2001	31/12/2001
KINGBOARD CHEMICALS	I	4 cents	3.5 cents	6/12/2001	31/3/2002
KOWLOON CHUNG BUS	I	1 cent	0.5 cent	17/12/2001	31/3/2002
LIU CHONG HING INV	I	14 cents	10 cents	16/8/2001	31/12/2001
LUNG KEE BERHDG	I	6 cents	3 cents	7/12/2001	31/3/2002
MIDLAND REALITY	I	1 cent	0.5 cent	17/9/2001	31/12/2001
MIRABELL INTL	I	2.8 cents	1.5 cents	19/11/2001	31/3/2002
MOULIN INTL	I	2.4 cents	1.4 cents	13/12/2001	31/3/2002
ORIENT POWER	I	1 cent	0.5 cent	6/9/2001	31/12/2001
ORIENTAL PRESS GP	I	5 cents	3 cents	13/12/2001	31/3/2002
ORIENTAL WATCH	I	3 cents	2.5 cents	18/12/2001	31/3/2002
RISING DEVEL HOLDING	I	1.2 cents	1 cent	11/12/2001	31/3/2002
ROAD KING INFRA	C	19 cents	7 cents	20/7/2001	31/12/2001
SHUI ON CONANDMATS	I	60 cents	15 cents	27/11/2001	31/3/2002
SINO LAND	I	5 cents	2 cents	20/3/2001	30/6/2001
TCC INTL	I	3 cents	2 cents	26/9/2001	31/12/2001
TONIC IND	I	1 cents	0.5 cent	13/12/2001	31/3/2002
VAN SHUNG CHONG	I	3 cents	1.8 cents	21/12/2001	31/3/2002
VARITRONIX INTL	I	15 cents	6.5 cents	24/9/2001	31/12/2001

Type: type of the largest shareholder, classified by individuals (I), corporation (C) and state (S).

Appendix A3

Interim dividend increase announcements in sampling period 2002

Company Name	Type	Previous Year	This Year	Declaration Date	Financial Year
ALCO HOLDINGS	I	1.5 cents	2 cents	5/12/2002	31/3/2003
CAFÉ DE CORAL	I	4.4 cents	6.4 cents	16/12/2002	31/3/2003
CATHAY PACIFIC	I	12.5 cents	16 cents	7/8/2002	31/12/2002
CHAMPION TECH	C	0.0625 cent	1.6 cents	26/3/2002	30/6/2002
CHINA RES ENTREP	C	8 cents	9 cents	4/9/2002	31/12/2002
CHUN WO	I	0.5 cent	0.75 cent	18/12/2002	31/3/2003
CITIC PACIFIC	C	20 cents	30 cents	26/8/2002	31/12/2002
CNOOC LTD	S	10 cents	11 cents	23/8/2002	31/12/2002
COSCO PACIFIC	C	9.5 cents	11 cents	5/9/2002	31/12/2002
DENWAY MOTORS LTD	C	2 cents	3 cents	18/9/2002	31/12/2002
ESPRIT HOLDINGS	I	4.8 cents	6 cents	7/2/2002	30/6/2002
HOPEWELL HDG	I	5 cents	6 cents	4/3/2002	30/6/2002
JOHNSON ELECTRIC HDG	I	3 cents	4 cents	10/12/2002	31/3/2003
KINGBOARD CHEMICALS	I	3.5 cents	4 cents	28/11/2002	31/3/2003
KOWLOON MTR BUS	I	40 cents	45 cents	12/9/2002	31/12/2002
KWOON CHUNG BUS	I	0.5 cent	1 cent	20/12/2002	31/3/2003
LEGEND GP	C	1.5 cents	1.8 cents	12/11/2002	31/3/2003
LUNG KEE BERHDG	I	3 cents	5 cents	13/12/2002	31/3/2003
MOULIN INTL	I	1.4 cents	5.6 cents	18/12/2002	31/3/2003
ROAD KING INFRA	C	7 cents	16 cents	22/7/2002	31/12/2002
SHUN TAK HOLDING	I	2 cents	3.5 cents	23/9/2002	31/12/2002
SW KINGWAY CAPITAL	I	1 cent	1.1 cents	6/3/2002	30/6/2002
SWIRE PACIFIC A	I	36 cents	40 cents	8/8/2002	31/12/2002
SWIRE PACIFIC B	I	7.2 cents	8 cents	8/8/2002	31/12/2002
TECHTRONIC INDS	I	4.5 cents	6 cents	8/8/2002	31/12/2002
TEXWINCA HDG	I	8 cents	11 cents	18/12/2002	31/3/2003
TRULY INTL	I	4 cents	5 cents	23/8/2002	31/12/2002
WING ON COINTL	C	4 cents	17 cents	12/9/2002	31/12/2002
YIP'S CHEMICAL	I	2.5 cents	4 cents	13/11/2002	31/3/2003

Type: type of the largest shareholder, classified by individuals (I), corporation (C) and state (S)

Appendix A4

Interim dividend decrease announcements in sampling period 2002

Company Name	Type	Previous Year	This Year	Declaration Date	Financial Year
AUTOMETED SYSTEMS	I	2 cents	1.6 cents	11/11/2002	31/3/2003
BRIGHT INTL GP	I	8 cents	6 cents	22/8/2002	31/12/2002
CARRY WEALTH HDG	I	6 cents	2.8 cents	22/8/2002	31/12/2002
CHEVALER INTL	I	2 cents	1.5 cents	16/12/2002	31/3/2003
CHINA RARE EARTH	I	2 cents	1 cent	19/9/2002	31/12/2002
COFCO INTL	S	4 cents	3 cents	28/8/2002	31/12/2002
DAIWA ASSOCIATE	I	2 cents	1.5 cents	28/11/2002	31/3/2003
ELECT & ELTEK INTL	C	3 cents	1 cent	27/2/2002	30/6/2002
GOLDLION HDG	I	1.5 cents	1 cent	17/9/2002	31/12/2002
GREAT EAGLE HDG	I	7 cents	5 cents	12/9/2002	31/12/2002
HENDERSON LD DEVE	I	55 cents	35 cents	20/3/2002	30/6/2002
HENGAN INTL GP	I	10 cents	8 cents	3/9/2002	31/12/2002
K WAH CONMATERIALS	I	1.5 cents	1 cent	18/9/2002	31/12/2002
KERRY PROPERTIES	C	20 cents	18 cents	12/8/2002	31/12/2002
KIN YAT HDG	I	3 cents	2.5 cents	9/12/2002	31/3/2003
LUK FOOK HDG	I	2.5 cents	2 cents	18/12/2002	31/3/2003
LUKS INDL	I	8 cents	4 cents	24/9/2002	31/12/2002
ORIENTAL WATCH	I	2.5 cents	2 cents	18/12/2002	31/3/2003
PERFECTECH INTL	I	2 cents	1 cent	18/9/2002	31/12/2002
SHAW BROTHERS HK	I	10 cents	5 cents	4/12/2002	31/3/2003
SKY WORLD DIGITAL	I	5 cents	0.5 cent	17/12/2002	31/3/2003
TAI SANG LAND DEVE	I	9 cents	6 cents	6/9/2002	31/12/2002
TCC INTL	I	2 cents	1.5 cents	24/9/2002	31/12/2002
TIANJIN DEVE	S	4 cents	3.3 cents	18/9/2002	31/12/2002
UNITED PACIFIC INDS	C	8 cents	4 cents	16/12/2002	31/3/2003
VARITRONIX INTL	I	6.5 cents	4.4 cents	22/8/2002	31/12/2002

Type: type of the largest shareholder, classified by individuals (I), corporation (C) and state (S).

Appendix A5

Final dividend increase announcements in sampling period 2001

Company Name	Type	Previous year	This year	Declaration date	Financial year
ARTS OPTICAL INTL	I	3.8 cents	7 cents	20/4/2001	31/12/2000
ASM PACIFIC	C	28 cents	85 cents	12/2/2001	31/12/2000
AUTOMATED SYSTEM	I	2 cents	3 cents	11/5/2001	31/3/2001
BRILLIANCE CHINA	S	0.21 cent	0.5 cent	26/4/2001	31/12/2000
CATHAY PACIFIC AIRWAYS	I	27 cents	45 cents	7/3/2001	31/12/2000
CHEN HSONG	I	2 cents	6 cents	17/7/2001	31/3/2001
CHEUNG KONG INFRA	I	29 cents	40 cents	15/3/2001	31/12/2000
CHINA EVERBRIGHT	C	8 cents	10 cents	30/3/2001	31/12/2000
CHINA MRCH	C	7 cents	8 cents	19/4/2001	31/12/2000
CHINA RARE EARTH	I	2 cents	3 cents	28/3/2001	31/12/2000
CHINA RES ENTREP	C	9 cents	15 cents	11/4/2001	31/12/2000
CHUNG TAI PRINT	I	4 cents	6 cents	23/7/2001	31/3/2001
CITIC PACIFIC	C	55 cents	65 cents	20/3/2001	31/12/2000
ELEGANCE INTL	I	6.5 cents	7.5 cents	20/7/2001	31/3/2001
FOUNTAIN SET	I	3.5 cents	5.5 cents	14/12/2001	31/8/2001
GOLDLION	I	2 cents	2.5 cents	12/4/2001	31/12/2000
GRANDE	I	10 cents	20 cents	26/4/2001	31/12/2000
HANG LUNG PROP	I	26 cents	29 cents	24/9/2001	30/6/2001
HK AIRCRAFT AND ENG	I	30 cents	38 cents	6/3/2001	31/12/2000
HOPEWELL HDG	I	6 cents	7 cents	19/9/2001	30/6/2001
KOWLOON DEVE	I	16 cents	18 cents	9/4/2001	31/12/2000
KOWLOON MTR BUS	I	107 cents	125 cents	15/3/2001	31/12/2000
LEGEND GP	C	1.8 cents	2.4 cents	28/6/2001	31/3/2001
LI & FUNG	I	12.5 cents	18 cents	26/3/2001	31/12/2000
MIDLAND REALITY	I	1.5 cents	2 cents	20/3/2001	31/12/2000
MIRAMAR INTL & INV	I	16 cents	19 cents	29/6/2001	31/3/2001
PICO FAR EAST	I	2.5 cents	3.5 cents	16/2/2001	31/10/2000
SHANGHAI INDL	C	22 cents	30 cents	18/4/2001	31/12/2000
SHENZHEN INV	C	3.7 cents	5 cents	24/4/2001	31/12/2000

Type: type of the largest shareholder, classified by individuals (I), corporation (C) and state (S).

Appendix A5

Continued- Final dividend increase announcements in sampling period 2001

Company Name	Type	Previous year	This year	Declaration date	Financial year
TELEVISION BROADCAST	I	60 cents	75 cents	11/4/2001	31/12/2000
TEXWINCA	I	6 cents	9 cents	18/7/2001	31/3/2001
TIANJIN DEVE	S	2 cents	2.5 cents	25/4/2001	31/12/2000
TPV TECHNOLOGY	I	1.482 cents	3.432 cents	19/4/2001	31/12/2000
TRISTATE	I	8 cents	12 cents	9/4/2001	31/12/2000
TRULY INTL	I	4 cents	6 cents	12/4/2001	31/12/2000
WING ON	C	4 cents	9 cents	9/4/2001	31/12/2000
WONG'S INTL	I	6 cents	12 cents	30/3/2001	31/12/2000

Type: type of the largest shareholder, classified by individuals (I), corporation (C) and state (S).

Appendix A6

Final dividend decrease announcements in sampling period 2001

Company Name	Type	Previous year	This year	Declaration date	Financial year
APT SATELLITE	C	35 cents	15 cents	9/4/2001	31/12/2000
CHEVALIER INTL	I	5 cents	3.5 cents	11/7/2001	31/3/2001
CHUANG'S CONSORT INTL	I	1 cents	0.5 cent	16/7/2001	31/3/2001
CONTINENTAL HDG	I	2 cents	1.5 cents	23/10/2001	30/6/2001
CROSS-HARBOUR	I	10 cents	5 cents	8/3/2001	31/12/2000
DECCA HDG	I	8.6 cents	1.2 cents	26/7/2001	31/3/2001
FIRST PACIFIC	I	2 cents	1 cent	5/3/2001	31/12/2000
FOUR SEAS EFOOD	I	1.5 cents	1 cent	26/7/2001	31/3/2001
GOLD PEAK INDS	I	7 cents	4 cents	14/6/2001	31/3/2001
GZI TRANSPORT	C	5 cents	1 cent	6/4/2001	31/12/2000
HANG LUNG GP LTD	I	40.5 cents	32 cents	24/9/2001	30/6/2001
HENDERSON CHINA	I	10 cents	6 cents	5/10/2001	30/6/2001
HENDERSON LD DEVE	I	100 cents	55 cents	4/10/2001	30/6/2001
HOPSON DEVE	I	5 cents	3 cents	17/4/2001	31/12/2000
MIRABELL INTL	I	5 cents	3.2 cents	11/6/2001	31/3/2001
MOULIN INTL	I	2.6 cents	1 cent	19/7/2001	31/3/2001
PEGASUS INTL	C	3.5 cents	1.5 cents	22/3/2001	31/12/2000
ROAD KING INFRA	C	22 cents	7 cents	28/3/2001	31/12/2000
SHELL ELECTRIC MNFG	I	5 cents	3 cents	18/4/2001	31/12/2000
SHUN TAK	I	5 cents	3 cents	11/4/2001	31/12/2000
SINO LAND	I	5 cents	2 cents	26/9/2001	31/12/2000
SUN HUNG KAI CO	I	4 cents	1 cent	4/4/2001	31/12/2000
SUN HUNG KAI PROPS	I	120 cents	100 cents	28/9/2001	30/6/2001
TCC INTL	I	6 cents	4 cents	2/4/2001	31/12/2000
TECHNOLOGY VENTURE	I	2.8 cents	0.5 cent	26/4/2001	31/12/2000
TONIC IND	I	3.8 cents	0.5 cent	18/7/2001	31/3/2001
UNIVERSE INTL	I	0.6 cent	0.3 cent	23/10/2001	30/6/2001
YIPS CHEMICAL	I	3.5 cents	2.5 cents	28/6/2001	31/3/2001
ZHONG HUA INTL	C	1.6 cents	1.2 cents	24/4/2001	31/12/2000

Type: type of the largest shareholder, classified by individuals (I), corporation (C) and state (S)

Appendix A7

Final dividend increase announcements in sampling period 2002

Company Name	Type	Previous year	This year	Declaration date	Financial year
BEIJING ENTERPRISES	S	15 cents	18 cents	11/4/2002	31/12/2001
CHINA MRCH HOLDINGS	C	8 cents	9 cents	22/4/2002	31/12/2001
COFCO INTL	S	4 cents	5 cents	8/4/2002	31/12/2001
COSCO PACIFIC	C	11 cents	14 cents	27/3/2002	31/12/2001
FAR EAST PHARM TECH	I	4 cents	4.5 cents	23/10/2002	30/6/2002
FOUNTAIN SET	I	5.5 cents	11 cents	12/12/2002	31/8/2002
GUOCO	C	60 cents	70 cents	18/10/2002	30/6/2002
GZI TRANSPORT	C	1 cent	2.5 cents	17/4/2002	31/12/2001
HK AIRCRAFT ENGR	I	38 cents	42 cents	6/3/2002	31/12/2001
LEGEND GROUP LTD	C	2.4 cents	3.6 cents	23/5/2002	31/3/2002
LUNG CHEONG INTL	I	0.25 cent	0.5 cent	22/7/2002	31/3/2002
MAINLAND HEADWEAR	I	4.5 cents	5 cents	16/4/2002	31/12/2001
MOULIN INTL	I	1 cent	1.5 cents	31/7/2002	31/3/2002
MTR CORP	S	10 cents	28 cents	1/3/2002	31/12/2001
NGAI HING HONG	I	1.5 cents	5 cents	7/10/2002	30/6/2002
PERFECTECH INDL	I	4 cents	4.5 cents	3/4/2002	31/12/2001
SHANGHAI INDL	C	30 cents	34 cents	15/4/2002	31/12/2001
SHANGHAI RL ESTATE	I	1.2 cents	1.59 cents	25/4/2002	31/12/2001
SILVER GRANT INTL	I	1 cent	2 cents	24/4/2002	31/12/2001
SINO GOLF	I	7 cents	10 cents	5/7/2002	31/3/2002
STARLITE	I	1 cent	2 cents	18/7/2002	31/3/2002
TECHTRONIC INDS	I	6 cents	7 cents	24/4/2002	31/12/2001
WING ON INTL	C	9 cents	12 cents	12/4/2002	31/12/2001
YUE YUEN INDL	I	55 cents	60 cents	21/1/2002	30/9/2001

Type: type of the largest shareholder, classified by individuals (I), corporation (C) and state (S).

Appendix A8

Final dividend decrease announcements in sampling period 2002

Company Name	Type	Previous year	This year	Declaration date	Financial year
ALPHA GENERAL	I	0.15 cent	0.08 cent	26/7/2002	31/3/2002
APT SATELLITE	C	15 cents	5 cents	8/4/2002	31/12/2001
ASM PACIFIC TECH	C	85 cents	64 cents	8/2/2002	31/12/2001
CATHAY PACIFIC AIRWAY	I	45 cents	5 cents	6/3/2002	31/12/2001
CHINA EVERBRIGHT	C	10 cents	1.2 cents	28/3/2002	31/12/2001
CHINA INSURANCE	S	4 cents	3.5 cents	26/3/2002	31/12/2001
CHINA RARE EARTH	I	3 cents	2 cents	19/4/2002	31/12/2001
CHINA RES LAND	C	2 cents	1.2 cents	12/4/2002	31/12/2001
CHUN WO	I	1.25 cents	1 cent	15/7/2002	31/3/2002
CNPC HK	S	4 cents	2 cents	22/4/2002	31/12/2001
ELEC & ELTEK INTL	C	2 cents	1.5 cents	18/9/2002	30/6/2002
GOLD PEAK INDUS	I	4 cents	1.5 cents	20/6/2002	31/3/2002
GOOD FELLOW GP LTD	I	1 cent	0.4 cent	25/10/2002	30/6/2002
GREAT EAGLE	I	20 cents	14 cents	13/3/2002	31/12/2001
HENDERSON LD DEVE	I	55 cents	45 cents	3/10/2002	30/6/2002
HOPSON DEVE	I	3 cents	2 cents	18/4/2002	31/12/2001
KERRY PROPERTIES	C	20 cents	12 cents	4/3/2002	31/12/2001
LERADO GROUP	I	8 cents	6 cents	16/4/2002	31/12/2001
LIU CHONG HING INVES	I	21 cents	10 cents	14/3/2002	31/12/2001
MIDLAND REALTY	I	2 cents	1.8 cents	20/3/2002	31/12/2001
ORIENT OVERSEAS INTL	I	23.4 cents	11.7 cents	15/3/2002	31/12/2001
ORIENTAL WATCH	I	6 cents	4.5 cents	18/7/2002	31/3/2002
OXFORD PROPS	C	25 cents	20 cents	22/5/2002	31/3/2002
SAFETY GODOWN	I	7 cents	6 cents	15/7/2002	31/3/2002
SHELL ELECTRIC MNFG	I	3 cents	2.5 cents	18/4/2002	31/12/2001
SINOPEC KANTON	C	2 cents	1.5 cents	2/4/2002	31/12/2001
TAI SANG LAND DEVE	I	8 cents	7 cents	28/3/2002	31/12/2001
TCC INTL	I	4 cents	2 cents	25/4/2002	31/12/2001
TCL INTL	C	3.5 cents	3 cents	14/3/2002	31/12/2001
YANGTZEKIANG GAR	I	10 cents	8 cents	16/7/2002	31/3/2002

Type: type of the largest shareholder, classified by individuals (I), corporation (C) and state (S).

Appendix B

Definitions of Datastream Datatype

Datatype	Definition
Daily stock price (Datatype = P)	<ul style="list-style-type: none">- The 'current' price on Datastream's equity programs is the latest price available from the appropriate market in primary units of currency.- It is the previous day's closing price from the default exchange and these stored prices are adjusted for subsequent capital actions. In Hong Kong, the "nominal" closing exchange price is used.
Market index (Datatype = TOMOTK)	<ul style="list-style-type: none">- The total market calculations do not include all companies in a market. Instead the most important companies by market value are chosen. The precise number of constituents varies from market to market, according to the size of the market capitalization, and changes to reflect current market conditions.- Datastream market index of Hong Kong is approximately included 130 Hong Kong stocks.
Dividend yield (Datatype = DY)	<ul style="list-style-type: none">- The dividend yield expresses the dividend per share as a percentage of the share price. The underlying dividend is calculated according to the same principles as datatype DPSC.- Dividend per share, current rate (datatype = DPSC) is the current annualised dividend rate. Special or once-off dividends are generally excluded.
Market Value (Datatype = MV)	<ul style="list-style-type: none">- Market value on Datastream is the share price multiplied by the number of ordinary shares in issue. The amount in issue is updated whenever new tranches of stock are issued or after a capital change.- For companies with more than one class of equity capital, the market value is expressed according to the individual issue.

Source: Datastream International database

Appendix C
Complete Dataset

Company Name	D Date	CAR	UD	CE	major	cmajor	O/C	cO/C
APT SATELLITE	9-Apr-01	0.094404194	-3.18085342	-0.22261645	51.92	3.33	1	0
ARTS OPTICAL INTL	20-Apr-01	0.074081875	4.190895419	0.09117275	55.27	6.68	1	0
ASM PACIFIC	12-Feb-01	0.161299197	4.175995526	0.151761831	54.11	5.52	1	0
ASM PACIFIC	23-Jul-01	-0.01060041	1.007972406	-0.06739202	54.11	5.52	1	0
AUTOMATED SYS	8-Nov-01	-0.0303768	-1.17069613	-0.01779687	7.8	-40.79	0.6526	-0.347
AUTOMATED SYSTEM	11-May-01	0.035764137	-0.28032717	0.015105557	7.8	-40.79	0.6526	-0.347
BRIGHT INTL	28-Aug-01	0.219734577	4.222743783	-0.0752	60.55	11.96	1	0
BRILLIANCE CHINA	26-Apr-01	0.00261395	-0.93679866	0.085048001	39.45	-9.14	1	0
BRILLIANCE CHINA	5-Sep-01	-0.06393826	-0.93803758	-0.013977	39.45	-9.14	1	0
CATHAY PACIFIC	7-Mar-01	0.081369956	1.470055957	0.068025764	46.14	-2.45	0.2896	-0.71
CATHAY PACIFIC	8-Aug-01	-0.02076623	0.050122419	-0.02288716	46.14	-2.45	0.2896	-0.71
CHEN HSONG	17-Jul-01	0.07243037	3.292590252	0.102736325	64.86	16.27	1	0
CHEUNG KONG INFRA	15-Mar-01	-0.00960125	0.682127755	0.003788534	37.04	-11.55	0.4227	-0.577
CHEVALIER INTL	11-Jul-01	-0.03270107	2.08765864	-0.19637664	50.23	1.64	1	0
CHEVALIER INTL	18-Dec-01	-0.02338806	1.856435791	-0.03286569	50.23	1.64	1	0
CHINA EVERBRIGHT	30-Mar-01	0.019104553	-0.3622932	0.105353666	55.47	6.88	1	0
CHINA EVERBRIGHT	4-Sep-01	0.08769089	-1.4711554	-0.09775812	55.47	6.88	1	0
CHINA MRCH	19-Apr-01	0.003569906	-0.31797874	0.024393449	53.39	4.8	1	0
CHINA RARE EARTH	10-Sep-01	-0.18366401	-0.00048546	0.016049285	51.57	2.98	1	0
CHINA RARE EARTH	28-Mar-01	0.097455705	0.735203744	0.035342308	51.57	2.98	1	0
CHINA RES ENTREP	11-Apr-01	0.037561135	2.956592059	0.005899296	56.6	8.01	1	0
CHINA RES ENTREP	18-Sep-01	-0.27544457	-0.09279765	-0.00844091	56.6	8.01	1	0
CHINA TRAVEL INTL	21-Aug-01	0.224473521	2.461893498	0.036705854	59.07	10.48	1	0
CHINA-HK PHOTO	11-Dec-01	-0.08648204	-1.2918072	-0.05385633	61.2	12.61	1	0
CHOW SANG SANG	30-Aug-01	-0.08963848	-1.05231568	-0.05915541	57.71	9.12	1	0
CHUANG'S CONSORT INTL	16-Jul-01	-0.14186851	-1.94000253	-0.92187569	50.19	1.6	1	0
CHUN WO HDG	19-Dec-01	0.000748257	-1.11843768	-0.01206929	45.05	-3.54	1	0
CHUNG TAI PRINT	23-Jul-01	-0.04104663	3.300282145	0.015818584	61.63	13.04	1	0
CITIC PACIFIC	20-Mar-01	0.01623797	0.669801025	0.00390087	28.8	-19.79	1	0
COFCO INTL	25-Sep-01	0.17327778	0.911571032	0.022684913	67.33	18.74	1	0
CONTINENTAL HDG	23-Oct-01	0.083419943	-0.08002827	-0.21024521	44.24	-4.35	1	0
COSCO PACIFIC	6-Sep-01	-0.04683285	0.54146684	0.001629525	54.87	6.28	1	0
COSLIGHT TECH	24-Sep-01	0.000272104	0.797446916	0.016144129	63.03	14.44	1	0
CROSS-HARBOUR	8-Mar-01	-0.04519239	-0.45940989	-0.21082054	27.57	-21.02	0.1294	-0.871
DAIWA ASSOCIATE	10-Dec-01	-0.11177236	-1.50050889	-0.09982359	17.75	-30.84	1	0
DECCA HDG	26-Jul-01	-0.03895378	-1.58383555	-0.25319231	56.26	7.67	1	0
ELEC & ELTEK INTL	6-Feb-01	0.171124945	1.542203941	0.044883951	44.42	-4.17	1	0
ELEGANCE INTL	20-Jul-01	-0.06950243	1.984512345	0.057171949	45.73	-2.86	1	0
ESPRIT HOLDINGS	1-Mar-01	0.047447339	-0.61340981	0.014243061	42.23	-6.36	1	0
FIRST PACIFIC	5-Mar-01	0.07333476	-1.22152709	-0.078923	44.52	-4.07	1	0
FOUNTAIN SET	18-May-01	0.308240667	1.831862303	0.007746393	39.26	-9.33	1	0
FOUNTAIN SET	14-Dec-01	0.008902223	3.555469605	0.017578756	39.26	-9.33	1	0
FOUR SEAS EFOOD	26-Jul-01	0.047036125	-0.72078267	0.209160371	33.82	-14.77	1	0
GLORIOUS SUN	18-Dec-01	0.021151283	0.986402198	-0.04507722	62.81	14.22	1	0
GOLD PEAK INDS	14-Jun-01	-0.07499216	-1.16763487	-0.23997194	25.3	-23.29	1	0
GOLDLION	12-Apr-01	0.030434781	1.956966878	-0.50165714	66.09	17.5	1	0
GRANDE	26-Apr-01	-0.03683397	1.297634973	-0.25332885	70.48	21.89	1	0
GREAT EAGLE HDG	11-Sep-01	-0.0806387	-0.59515751	-0.01857214	58.86	10.27	1	0
GUOCO GROUP	16-Mar-01	-0.00409017	-0.24510204	-0.09212882	41.88	-6.71	1	0
GZI TRANSPORT	6-Apr-01	-0.02555415	-2.47829329	-0.11843571	68.8	20.21	1	0
HANG LUNG GP LTD	24-Sep-01	-0.11250143	-0.21882603	0.006107944	36.01	-12.58	1	0
HANG LUNG PROP	2-Mar-01	0.0152941	0.595081204	0.008428525	36.01	-12.58	0.6107	-0.389
HANG LUNG PROP	24-Sep-01	0.021899599	0.515634719	0.011068405	36.01	-12.58	0.6107	-0.389
HENDERSON CHINA	5-Oct-01	-0.04982953	-0.73344232	0.023238259	64.47	15.88	0.6533	-0.347
HENDERSON LD DEVE	4-Oct-01	-0.08632434	-1.10814003	-0.05520219	64.47	15.88	1	0
HK AIRCRAFT AND ENG	6-Mar-01	-0.07087257	0.368522972	0.145003384	32.47	-16.12	0.2895	-0.711
HOPEWELL HDG	19-Sep-01	-0.03323061	-0.35251191	0.040297183	25.82	-22.77	1	0
HOPSON DEVE	17-Apr-01	-0.12540617	-1.44857581	-0.26105444	63.62	15.03	1	0
IMI GLOBAL	28-Nov-01	0.025762694	1.083153345	0.016143532	57.6	9.01	1	0
K WAH CONMATERIALS	18-Sep-01	-0.10365122	0.566333339	-0.05846231	65	16.41	0.6725	-0.328
KIN YAT HDG	14-Dec-01	0.129512616	1.750015725	0.049020889	66.62	18.03	1	0
KINGBOARD CHEMICALS	6-Dec-01	0.032247674	-0.55883988	-0.01944089	43.86	-4.73	1	0
KOWLOON CHUNG BUS	17-Dec-01	0.024801887	-1.49166638	-0.10847277	31.96	-16.63	1	0

Notes: cmajor = centered major cO/C = centered O/C

Appendix C
Complete Dataset

Company Name	D Date	CAR	UD	CE	major	cmajor	O/C	cO/C
KOWLOON DEVE	9-Apr-01	-0.02330296	1.723234401	0.02121195	72.94	24.35	1	0
KOWLOON MTR BUS	15-Mar-01	-0.04029256	1.2618832	0.005135478	33.02	-15.57	0.4488	-0.551
KOWLOON MTRBUS	13-Sep-01	0.104692936	1.155063374	0.053424002	33.02	-15.57	0.4488	-0.551
LEGEND GP	28-Jun-01	-0.14987598	-0.51606691	-0.00802699	57.39	8.8	1	0
LEGEND GROUP	7-Nov-01	-0.13669027	-0.4823111	0.013496391	57.39	8.8	1	0
LI & FUNG	26-Mar-01	-0.03759534	-0.37135582	0.008112494	40.32	-8.27	1	0
LI & FUNG	20-Aug-01	-0.12539062	-0.19848784	0.000364551	40.32	-8.27	1	0
LIU CHONG HING INV	16-Aug-01	-0.05596412	0.100395054	-0.02005625	62.2	13.61	1	0
LUNG KEE BERHDG	7-Dec-01	-0.14110591	-0.10052083	-0.06681441	72.86	24.27	1	0
MIDLAND REALITY	17-Sep-01	-0.08566999	-1.15580328	0.036957199	30.89	-17.7	1	0
MIDLAND REALITY	20-Mar-01	-0.09514898	0.185104731	0.022803902	30.89	-17.7	1	0
MIRABELL INTL	19-Nov-01	-0.00695405	-0.67953229	-0.05460555	48.09	-0.5	1	0
MIRABELL INTL	11-Jun-01	-0.12704546	-0.60064331	0.030008251	48.09	-0.5	1	0
MIRAMAR INTL & INV	29-Jun-01	0.037542786	0.945418082	0.006920414	43.69	-4.9	0.4738	-0.526
MOULIN INTL	19-Jul-01	-0.16639863	-0.5568892	-0.07292614	36.52	-12.07	1	0
MOULIN INTL	13-Dec-01	0.178416854	0.32847345	-0.06089869	36.52	-12.07	1	0
ORIENT POWER	6-Sep-01	-0.12748483	-0.08907122	-0.09136115	47.37	-1.22	1	0
ORIENTAL PRESS GP	13-Dec-01	0.047518519	-1.72382991	-0.00830976	63.85	15.26	1	0
ORIENTAL WATCH	18-Dec-01	0.049731251	1.050509597	-0.02672463	35.17	-13.42	1	0
PEGASUS INTL	22-Mar-01	-0.0056965	-1.16972344	0.004780115	64.15	15.56	1	0
PICO FAR EAST	16-Feb-01	0.055863199	1.489125054	-0.00290227	39.44	-9.15	1	0
RISING DEVEL HOLDING	11-Dec-01	-0.01153613	0.268300233	-0.04832781	68.73	20.14	1	0
ROAD KING INFRA	28-Mar-01	-0.2253802	-1.77474733	-0.09731695	26.82	-21.77	0.0869	-0.913
ROAD KING INFRA	20-Jul-01	-0.05033456	-2.4037375	-0.02549063	26.82	-21.77	0.0869	-0.913
SHANGHAI INDL	18-Apr-01	0.034261136	0.288891249	0.016911165	59.13	10.54	1	0
SHANGHAI INDL	3-Sep-01	0.026376645	0.056031904	0.017549143	59.13	10.54	1	0
SHELL ELECTRIC MNFG	18-Apr-01	-0.07175092	-1.14324732	0.020456099	70	21.41	1	0
SHENZHEN INV	24-Apr-01	0.044278538	1.378364634	0.103487362	57.19	8.6	1	0
SHUI ON CONANDMATS	27-Nov-01	-0.07934994	1.612437814	-0.13905532	64.16	15.57	1	0
SHUN TAK	11-Apr-01	-0.09472969	-1.14099261	-0.02745872	30.79	-17.8	1	0
SINO LAND	20-Mar-01	-0.12227133	-1.00053392	-0.02848135	66.26	17.67	0.7172	-0.283
SINO LAND	26-Sep-01	0.027597334	-1.63016659	-0.10759904	52.72	4.13	0.7172	-0.283
SUN HUNG KAI CO	4-Apr-01	-0.08720988	-0.1241205	-0.07694566	29.88	-18.71	0.5526	-0.447
SUN HUNG KAI PROPS	28-Sep-01	-0.01147786	-0.60567231	-0.01787697	44.89	-3.7	1	0
TCC INTL	2-Apr-01	0.010106574	-0.5997366	-0.47566462	12.4	-36.19	0.6798	-0.32
TCC INTL	26-Sep-01	-0.11182055	0.822847308	-0.02045235	12.4	-36.19	0.6798	-0.32
TECHNOLOGY VENTURE	26-Apr-01	-0.04989224	-1.8610195	-0.04993785	16.48	-32.11	1	0
TECHTRONIC INDS	3-Sep-01	-0.06000941	0.673838437	0.0133277	30.77	-17.82	1	0
TELEVISION BROADCAST	11-Apr-01	0.005152306	-0.23028848	0.016726901	26	-22.59	0.8563	-0.144
TEXWINCA HDG	18-Dec-01	0.129878991	0.642665835	0.012611306	55.9	7.31	1	0
TEXWINCA	18-Jul-01	0.020949275	1.235633663	0.058583327	55.9	7.31	1	0
TIANJIN DEVE	25-Apr-01	0.056439716	-0.21187611	0.057475884	56.88	8.29	1	0
TIANJIN DEVELOP	12-Sep-01	-0.00017283	-0.48560677	0.005797996	56.88	8.29	1	0
TONIC IND	18-Jul-01	-0.11881614	-5.77164908	-0.25285139	50.04	1.45	1	0
TONIC IND	13-Dec-01	0.116405341	-1.02776249	-0.05253448	50.04	1.45	1	0
TPV TECHNOLOGY	19-Apr-01	0.183646712	2.316305896	0.193310413	55.24	6.65	1	0
TPV TECHNOLOGY	6-Sep-01	-0.01635946	-0.15403679	0.021343533	55.24	6.65	1	0
TRISTATE	9-Apr-01	0.050066389	3.397958791	0.104372878	79.6	31.01	1	0
TRULY INTL	12-Apr-01	-0.10183523	0.574727892	0.015192866	47.56	-1.03	1	0
UNIVERSE INTL	23-Oct-01	-0.00054493	-1.53192524	-0.03927893	23.34	-25.25	1	0
VAN SHUNG CHONG	21-Dec-01	0.139510943	4.591408589	-0.86320006	55.55	6.96	1	0
VARITRONIX INTL	24-Sep-01	0.122738128	-0.77536304	-0.07256878	22.5	-26.09	1	0
WING ON	9-Apr-01	-0.01396784	0.929974142	0.043239711	61.13	12.54	1	0
WONG'S INTL	30-Mar-01	-0.01893703	2.713400473	0.713823409	73.49	24.9	1	0
YIPS CHEMICAL	28-Jun-01	-0.06738408	0.441175399	-0.07379097	59	10.41	1	0
ZHONG HUA INTL	24-Apr-01	-0.03618007	-3.24083131	0.017681368	38.25	-10.34	0.9236	-0.076
ALCO HOLDINGS	5-Dec-02	0.007719804	0.115548593	0.03645026	56.38	7.79	1	0
ALPHA GENERAL	26-Jul-02	-0.08297004	0.928717969	-0.12292215	61.19	12.6	1	0
APT SATELLITE	8-Apr-02	-0.0297173	-2.77902077	-0.05842946	51.92	3.33	1	0
ASM PACIFIC TECH	8-Feb-02	-0.01066552	0.071065438	-0.15169179	54.11	5.52	1	0
AUTOMETED SYSTEMS	11-Nov-02	-0.04452301	-0.94971356	-0.01861314	7.8	-40.79	0.6526	-0.347
BEIJING ENTERPRISES	11-Apr-02	0.004693554	0.149483928	0.029839893	62.46	13.87	1	0
BRIGHT INTL GP	22-Aug-02	0.101260069	-0.19691459	0.020665987	60.55	11.96	1	0

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Appendix C
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Company Name	D Date	CAR	UD	CE	major	cmajor	O/C	cO/C
CAF? DE CORAL	16-Dec-02	0.075536328	0.233603281	0.004957277	38.93	-9.66	1	0
CARRY WEALTH HDG	22-Aug-02	-0.03317715	-0.73950283	-0.06820583	45	-3.59	1	0
CATHAY PACIFIC	6-Mar-02	-0.1206043	-3.2217086	-0.11327555	46.14	-2.45	0.2896	-0.71
CATHAY PACIFIC	7-Aug-02	0.025836317	-0.15557818	0.001802026	46.14	-2.45	0.2896	-0.71
CHAMPION TECH	26-Mar-02	0.027990085	-0.25408115	-0.06030849	37.13	-11.46	1	0
CHEVALER INTL	16-Dec-02	0.060617168	0.573784587	-0.01415332	50.23	1.64	1	0
CHINA EVERBRIGHT	28-Mar-02	-0.02490963	-1.95848233	-0.14790539	55.47	6.88	1	0
CHINA INSURANCE	26-Mar-02	-0.05238929	-0.91299037	0.022485699	54.79	6.2	1	0
CHINA MRCH HOLDINGS	22-Apr-02	-0.08384177	-0.3343058	-0.00832873	53.39	4.8	1	0
CHINA RARE EARTH	19-Apr-02	-0.04819522	-0.97508923	0.000615705	51.57	2.98	1	0
CHINA RARE EARTH	19-Sep-02	-0.13191296	-1.16046734	-0.04567004	51.57	2.98	1	0
CHINA RES ENTREP	4-Sep-02	-0.06032053	-0.12850483	-0.00522755	56.6	8.01	1	0
CHINA RES LAND	12-Apr-02	-0.02781127	0.30650878	-0.06220932	50.43	1.84	1	0
CHUN WO	18-Dec-02	0.01080844	1.088936196	0.013539409	45.05	-3.54	1	0
CHUN WO	15-Jul-02	-0.08727852	-0.075286	0.032811439	45.05	-3.54	1	0
CITIC PACIFIC	26-Aug-02	0.04500061	1.256691077	0.013262483	28.8	-19.79	1	0
CNOOC LTD	23-Aug-02	-0.03967355	0.111830959	-0.01658311	70.61	22.02	1	0
CNPC HK	22-Apr-02	-0.07108267	-2.26799801	-0.09764314	57.91	9.32	1	0
COFCO INTL	8-Apr-02	0.129218443	0.859377627	0.088164206	67.33	18.74	1	0
COFCO INTL	28-Aug-02	0.067616904	0.654078455	0.045894384	67.33	18.74	1	0
COSCO PACIFIC	27-Mar-02	0.080808297	0.531122869	0.00730092	54.87	6.28	1	0
COSCO PACIFIC	5-Sep-02	0.07054316	0.348513253	-0.00701862	54.87	6.28	1	0
DAIWA ASSOCIATE	28-Nov-02	0.098581306	-1.08537093	-0.0299955	17.75	-30.84	1	0
DENWAY MOTORS LTD	18-Sep-02	0.00242971	-0.10462074	0.02304604	40.68	-7.91	1	0
ELEC & ELTEK INTL	18-Sep-02	0.024167102	-1.10591899	0.05515819	44.42	-4.17	1	0
ELECT & ELTEK INTL	27-Feb-02	-0.06219499	0.107204907	-0.0196232	44.42	-4.17	1	0
ESPRIT HOLDINGS	7-Feb-02	0.272848753	-0.64967343	0.010716653	42.23	-6.36	1	0
FAR EAST PHARM TECH	23-Oct-02	0.116572722	-0.62542848	0.875800053	50.26	1.67	1	0
FOUNTAIN SET	12-Dec-02	0.141393781	1.063364736	0.028686906	39.26	-9.33	1	0
GOLD PEAK PEAK INDUS	20-Jun-02	-0.12291751	-1.60295254	-0.05336458	25.3	-23.29	1	0
GOLDLION HDG	17-Sep-02	0.07001261	-0.30459815	-0.10393771	66.09	17.5	1	0
GOOD FELLOW GP LTD	25-Oct-02	-0.11883427	-2.60058924	0.019637343	42.81	-5.78	1	0
GREAT EAGLE	13-Mar-02	-0.00275658	-0.98711124	-0.02397474	58.86	10.27	1	0
GREAT EAGLE HDG	12-Sep-02	-0.04980371	-0.85571406	0.012444684	58.86	10.27	1	0
GUOCO	18-Oct-02	-5.4483E-05	0.818047165	-1.40426507	41.88	-6.71	1	0
GZI TRANSPORT	17-Apr-02	-0.05480947	0.48139278	-0.08475466	68.66	20.07	1	0
HENDERSON LD DEVE	20-Mar-02	-0.08381283	-0.02489409	-0.02280108	64.47	15.88	1	0
HENDERSON LD DEVE	3-Oct-02	-0.02880803	-0.66972329	-0.06586493	64.47	15.88	1	0
HENGAN INTL GP	3-Sep-02	0.081290875	0.596343298	-0.01025481	44.61	-3.98	1	0
HK AIRCRAFT ENGR	6-Mar-02	0.01458381	0.269452389	-0.03143011	32.47	-16.12	0.2895	-0.711
HOPEWELL HDG	4-Mar-02	-0.00593583	-0.91027146	-0.00143221	25.82	-22.77	1	0
HOPSON DEVE	18-Apr-02	-0.1372538	-1.01925641	-0.01652304	63.62	15.03	1	0
JOHNSON ELECTRIC HDG	10-Dec-02	0.034612175	-0.55446157	0.006107277	59.64	11.05	1	0
K WAH CONMATERIALS	18-Sep-02	-0.06075197	-0.03635765	-0.05616716	65	16.41	0.6725	-0.328
KERRY PROPERTIES	12-Aug-02	-0.08082813	-0.19041135	0.013076285	63.35	14.76	1	0
KERRY PROPERTIES	4-Mar-02	0.020587361	-0.58494518	-0.04943149	63.35	14.76	1	0
KIN YAT HDG	9-Dec-02	-0.05755576	-0.1851274	-0.03856454	66.62	18.03	1	0
KINGBOARD CHEMICALS	28-Nov-02	-0.04036296	-0.3673121	0.009361403	43.86	-4.73	1	0
KOWLOON MTR BUS	12-Sep-02	-0.03850602	0.346889095	-0.01963811	33.02	-15.57	0.4488	-0.551
KWOON CHUNG BUS	20-Dec-02	0.008704281	-0.15695478	-0.12082972	31.96	-16.63	1	0
LEGEND GP	12-Nov-02	-0.05293037	-2.60773182	0.002566983	57.39	8.8	1	0
LEGEND GROUP LTD	23-May-02	0.018564702	-0.48565928	-0.01292797	57.39	8.8	1	0
LERADO GROUP	16-Apr-02	0.110095537	-0.3285719	-0.02269953	33.14	-15.45	1	0
LIU CHONG HING INVES	14-Mar-02	-0.08660828	-1.58643466	-0.13253983	62.2	13.61	1	0
LUK FOOK HDG	18-Dec-02	-0.06790423	0.580480401	-0.0309635	48.85	0.26	1	0
LUKS INDL	24-Sep-02	0.077090953	0.62341547	0.34528751	39.81	-8.78	1	0
LUNG CHEONG INTL	22-Jul-02	0.064223009	-0.68745055	0.014143943	58.18	9.59	1	0
LUNG KEE BERHDG	13-Dec-02	0.173526979	2.139565062	0.024528943	72.86	24.27	1	0
MAINLAND HEADWEAR	16-Apr-03	-0.02404841	0.334713211	0.032078465	67.54	18.95	1	0
MIDLAND REALTY	20-Mar-02	0.022831763	-0.24549953	-0.03787128	30.89	-17.7	1	0
MOULIN INTL	31-Jul-02	-0.18651127	-0.03895052	-0.05494252	36.52	-12.07	1	0
MOULIN INTL	18-Dec-02	0.033080244	0.185637499	-0.01334103	36.52	-12.07	1	0
MTR CORP	1-Mar-02	0.017680152	1.395074788	0.003845716	76.14	27.55	1	0

Notes: cmajor = centered major cO/C = centered O/C

Appendix C
Complete Dataset

Company Name	D Date	CAR	UD	CE	major	cmajor	O/C	cO/C
NGAI HING HONG	7-Oct-02	0.115871437	6.034481843	0.136306452	51	2.41	1	0
ORIENT OVERSEAS INTL	15-Mar-02	-0.0987812	-1.7736504	-0.2350019	73.29	24.7	1	0
ORIENTAL WATCH	18-Jul-02	-0.19078244	-0.33506151	-0.05722092	35.17	-13.42	1	0
ORIENTAL WATCH	18-Dec-02	0.061236895	0.12517209	-0.01658808	35.17	-13.42	1	0
OXFORD PROPS	22-May-02	0.090207359	-0.75574756	-0.05720962	89.16	40.57	1	0
PERFECTECH INDL	3-Apr-02	0.138856246	1.899471778	-0.0002689	60.38	11.79	1	0
PERFECTECH INTL	18-Sep-02	-0.01219705	-0.20735083	-0.00906431	60.38	11.79	1	0
ROAD KING INFRA	22-Jul-02	0.02562786	2.190138661	-0.01083717	26.82	-21.77	0.0869	-0.913
SAFETY GODOWN	15-Jul-02	0.00500506	-0.45163426	-0.00788191	47.81	-0.78	1	0
SHANGHAI INDL	15-Apr-02	-0.06446536	-0.12869333	0.012343187	59.13	10.54	1	0
SHANGHAI RL ESTATE	25-Apr-02	-0.06966712	-0.44575851	0.025397504	56.38	7.79	1	0
SHAW BROTHERS HK	4-Dec-02	0.15717329	-0.71410015	-0.01212966	74.58	25.99	1	0
SHELL ELECTRIC MNFG	18-Apr-02	-0.03491532	-0.13226196	-0.18895455	70	21.41	1	0
SHUN TAK HOLDING	23-Sep-02	0.112231968	0.939087805	0.073150772	30.79	-17.8	1	0
SILVER GRANT INTL	24-Apr-02	-0.01444564	0.704233961	0.04346842	15.15	-33.44	1	0
SINO GOLF	5-Jul-02	0.095519691	-0.21970007	-0.17262456	66.26	17.67	1	0
SINOPEC KANTON	2-Apr-02	0.064750015	-0.79578544	-0.0626745	55.06	6.47	0.7265	-0.274
SKY WORLD DIGITAL	17-Dec-02	-0.062689	-2.45989846	0.050397569	39.09	-9.5	1	0
STARLITE	18-Jul-02	-0.04732747	2.93757598	0.166138902	51.66	3.07	1	0
SW KINGWAY CAPITAL	6-Mar-02	-0.04895672	-1.39138199	0.005401969	48.26	-0.33	0.7422	-0.258
SWIRE PACIFIC A	8-Aug-02	0.028034348	0.14039801	0.012940225	52.2	3.61	0.5546	-0.445
SWIRE PACIFIC B	8-Aug-02	0.03848366	0.45544915	0.027367532	52.2	3.61	0.5546	-0.445
TAI SANG LAND DEVE	28-Mar-02	-0.02471543	1.265544812	-0.07343134	55.01	6.42	1	0
TAI SANG LAND DEVE	6-Sep-02	0.002271368	-0.7298119	-0.03236511	55.01	6.42	1	0
TCC INTL	25-Apr-02	-0.00612374	-1.43305878	0.493490759	12.4	-36.19	0.6798	-0.32
TCC INTL	24-Sep-02	0.008376135	-0.27247648	-0.04049391	12.4	-36.19	0.6798	-0.32
TCL INTL	14-Mar-02	-0.03038768	-0.84038809	-0.03936311	54.94	6.35	1	0
TECHTRONIC INDS	24-Apr-02	0.030593742	-0.43391627	0.017753475	30.77	-17.82	1	0
TECHTRONIC INDS	8-Aug-02	-0.21809631	-1.02988543	0.020492427	30.77	-17.82	1	0
TEXWINCA HDG	18-Dec-02	0.217171249	0.531662198	0.003996833	55.9	7.31	1	0
TIANJIN DEVE	18-Sep-02	0.077052312	-0.90463789	0.027517521	56.88	8.29	1	0
TRULY INTL	23-Aug-02	0.024158515	0.1682652	0.00050899	47.56	-1.03	1	0
UNITED PACIFIC INDS	16-Dec-02	0.441741844	-7.02105143	0.002066677	23.34	-25.25	1	0
VARITRONIX INTL	22-Aug-02	0.093846749	-1.41053403	-0.00367528	22.5	-26.09	1	0
WING ON COINTL	12-Sep-02	0.415693185	3.676016551	0.206112969	61.13	12.54	1	0
WING ON INTL	12-Apr-02	0.014097718	1.190256722	0.085883797	61.13	12.54	1	0
YANGTZEKIANG GAR	16-Jul-02	-0.13220072	-0.11636097	-0.12566385	46.38	-2.21	1	0
YIP'S CHEMICAL	13-Nov-02	0.230456079	1.480984187	0.081369127	59	10.41	1	0
YUE YUEN INDL	21-Jan-02	0.062668633	1.266531827	0.000468964	24.7	-23.89	0.4818	-0.518

Notes: cmajor = centered major cO/C = centered O/C

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