Dividends, Controlling Shareholders and Firm Performance:

An Empirical Investigation of Large Firms Listed on the Main Board of Hong Kong Stock Exchange

Abstract

This study examines whether dividends payout has a positive contribution to firm performance while taking into account the important firm level characteristics such as the divergence between the control rights and the ownership rights of controlling shareholders and firm leverage. Investigating the large firms listed on the Main Board of Hong Kong Stock Exchange over the 1998-2007 period, we find that dividends payout has statistically significantly positive impacts on both ROA and Tobin's Q, particularly after controlling for the nonlinear relation between dividends and firm performance and between control rights of the controlling shareholder and firm performance. The regression results do not show significant interaction effect between dividends payout and control divergence on firm performance. But the impact of dividends payout on firm performance is different in family controlled firms vs. state controlled firms and varies with institutional factors.

1. Introduction

In the literature, there are two main theories that relate dividends payout policy to firm performance[1]. The agency cost theory argues that dividends payout plays a role in keeping the firm constantly in the market for capital, which monitors and disciplines managers to improve the operating performance (see, e.g. Rozeff 1982; Easterbrook 1984; Jensen 1986). DeAngelo and DeAngelo (2006) show that payout policy, like investment policy, has first-order value consequences in frictionless markets.

The aim of this study is to empirically test the theories which argue that dividends payout policy is relevant to firm performance in terms of ROA, which measures firms' operating performance and in terms of Tobin's Q, which measures firms' market value and shareholders' wealth. Findings from this empirical study will facilitate firm managers to make optimal retention/payout decisions and provide evidences or insights to policy makers and regulators of the stock market, particularly in the emerging markets to assist them in making policy and regulation related to dividends payout and investor protection.

Much of the existing empirical literature on dividends and firm performance treats firm performance as the explanatory variable and dividends payout as the explained variable (see, e.g. Brav et al. 2005; Denis and Osobov 2008; Von Eije and Megginson 2008; and others). This study is designed in the reverse direction treating dividends payout as the explanatory variable and firm performance as the explained variable[2]. Previous studies have identified a number of factors that may affect or are closely related to firm performance. Control divergence of the ultimate controlling shareholder and firm leverage are introduced to examine the possible interaction effects with dividends on firm performance. Other control variables such as firm size, firm age and GDP are included in the study to help clarify the relationships between variables and firm performances.

To avoid the limitations associated with cross-country studies and the "ad hoc nature of the regression form not resulting directly from a theoretical model" (Pinkowitz, Stulz and Williamson 2006) and to serve our research objective, we choose to conduct a firm-level analysis within a single country/region. Hong Kong provides an appropriate experimental setting for this study mainly because there is no tax imposed on dividends in Hong Kong, which eliminates the influence of tax on dividend payouts and enables a more reliable examination of the role of dividends on firm performance and because the presence of controlling shareholders is the

[1] We do not include dividends signaling theory here because the signaling theory is based on dividend irrelevance theorem (Miller and Modigliani 1961) and is concerned with the relation between the change of dividends payout or unexpected news and future firm performance.
[2] As indicated in Footnote 1, we are concerned with the level of dividends payout rather than the change of dividends payout.

predominant ownership structure of listed firms in Hong Kong.

After filtering, the largest 312 "Industrial Firms" listed on the Main Board of Hong Kong Stock Exchange are included in our sample. The total market value of these firms shares about 90% of the total market capitalization of all the "Industrial Firms" listed on the Main Board of the Hong Kong Stock Exchange in 2007. To avoid the influences by the Asian financial crisis in 1997 and the worldwide financial crisis triggered by US sub-prime mortgage in 2008, our sample period spreads from 1998 to 2007.

The most recent ultimate ownership data for large firms listed on Hong Kong Stock Exchange is only available for the year of 1996, collected by Claessens, Djankov and Lang (2000)[3]. Considering the facts that the ownership structure and the status of firms have changed significantly following the 1997 Asian financial crisis and lots of China's state-owned companies have got listed on the Main Board of Hong Kong Stock Exchange since 1997, we manually re-collect the ownership structure data of all firms in our sample. The comparison of the two groups of ultimate ownership data as of the end of fiscal year 1996 by Claessens, Djankov and Lang (2000) and as of the end of fiscal year 2007 by this study, shows that about two thirds of the firms in our sample got listed after 1997 and there are substantial changes in terms of control rights, cash flow rights and the separation of cash flow and control rights of the ultimate controlling shareholders, which indicates that our effort is worthwhile.

This study is intended to serve three purposes. First, this study provides a piece of preliminary evidence on the relationship between dividends and firm performance by examining the main effect of dividends payout and the interaction effects between dividends and other factors in the real world with imperfections. Second, we manually collect the ultimate ownership data to investigate the stability of the ultimate ownership structure over years, and examine whether different types of ultimate owners and whether different degrees of control divergence interact with dividends differently. Third, this study also provides some empirical evidences and insights to regulators on the relationship between dividends and investor protection. By examining how the investors' valuation of firms vary to the different levels of dividend payouts in the relatively developed Hong Kong stock market, our study offers some hints on whether and how mandatory dividend rules should be adopted by emerging markets to effectively protect minority shareholders against expropriation and thus to facilitate the healthy development of the stock markets (La Porta et al. 1998&2000a).

The paper proceeds as follows. Section 2 reviews the literature regarding dividends and firm performance. Section 3 formulates the hypothesis after the discussions of the variables that will appear in our model. Section 4 describes the

[3] These data are posted on the website of Journal of Financial Economics in the "Data and programs used in JFE papers".

sample and data. Section 5 presents the results of data analysis and various robustness checks. Section 6 concludes the paper.

2. Dividend Policy and Firm Performance

In the literature, the understanding on whether dividend payout affects firm performance has been progressing gradually, which have taken researchers almost half a century. Miller and Modigliani (1961) (hereafter referred to as MM) have proved that under the assumptions of perfect capital market and rational behavior of investors, or simply expressed as "frictionless market" (DeAngelo and DeAngelo, 2006), "given a firm's investment policy, its dividend policy was irrelevant to its current market valuation," or "…the value of the firm must … be independent of dividend policy given investment policy." The essential implication drawn from MM theorem is that only investment policy determines the market value of a firm, and that dividend policy and leverage have no impact on firm value given a value-maximizing investment policy (see, e.g. Allen and Michaely, 2003). As for "the fact that in the real world a change in the dividend rate is often followed by a change in the market price", Miller and Modigliani (1961) explain that the change in firm value is not caused by the dividend policy itself but by the "information content" of dividend conveyed by managers intentionally or unintentionally as well as interpreted by investors. This attribute of dividends is excluded by MM theorem's assumptions from their proof (Miller and Modigliani 1961).

Easterbrook (1984) queries: "The problem with the irrelevance proposition is that dividends are costly yet ubiquitous. Something causes them." To compromise the conflicts between MM theorem and the real world facts, dividend signaling models expand the concept of "information content" by allowing the firm's managers to know more than outside investors about the true information of the firm. For example, Miller and Rock (1985) show that dividends signal serves for the good news rather than bad news. Firms with good news bear the costs of signaling to give the market confidence that earnings are good enough to justify a dividend. Other signaling models argue that changes in dividend policy convey news about the firm's future cash flows in a way that dividend increases convey good news and dividend decreases convey bad news. Moreover, these models predict a positive relationship between dividend changes and the price changes (see, e.g. Bhattacharya 1979; John and Williams 1985). In the meanwhile, there appear other explanations for the problem with the MM theorem such as tax clientele effects (see, e.g. Allen, Bernardo and Welch 2000), catering incentive effects (see, e.g. Baker and Wurgler 2004; and Li and Lie 2006). However, researchers' opinions on these explanations are inconclusive, and either the empirical tests are lacking or the results of the empirical studies are mixed (see e.g. Easterbrook 1984; DeAngelo, DeAngelo and Skinner 1996).

Another fact in the real world that deviates from the assumptions of MM theorem is that investment policy is not always at a maximum level, and is affected by payout

policy in general and dividend policy in particular. The agency costs studies are concerned with this question. “[W]hen the organization generates substantial free cash flow,” as Jensen (1986) describes, “[c]onflicts of interest between shareholders and managers over payout policies are especially severe.” The problem facing agency costs researchers is “how to motivate managers to disgorge the cash rather than investing it at below the cost of capital or wasting it on organization inefficiencies” (Jensen, 1986). Therefore, dividend payments are part of firm’s optimum monitoring or discipline measures to improve firm’s value through reducing agency costs (Rozeff, 1982; Jensen 1986). From the perspective of agency-cost, dividend policy affects firm performance through the control of agency costs. Two main sources of agency costs influencing firm value are the monitoring of managers and the risk aversion on the part of managers. An effective and efficient way to reduce these agency costs is to keep firms constantly in the market for capital, and dividend and other payout may play the role of putting the firm into market for capital (Easterbrook, 1984).

Dividend payout policy’s first-order effect on firm value has been restored at last since 2006. DeAngelo and DeAngelo (2006) show that in frictionless markets, “payout policy matters in exactly the same sense that investment policy does.” MM describes the irrelevance of dividend payout policy as follows: “Values there are determined solely by ‘real’ considerations- in this case the earning power of the firm's assets and its investment policy- and not by how the fruits of the earning power are ‘packaged’ for distribution.” Now it should be rewritten as that firm values are determined by the earning power of the firm’s assets, its investment policy and payout policy, and that the payout policy is not just how the fruits are packaged for distribution but determines the size of the fruits. The validity of the MM dividend irrelevance theorem is built on the joint effect of their assumptions, which limits the feasible pool of payout policies. In other words, only generous payout policy is feasible and niggardly payout policy is infeasible. When these assumptions are relaxed, dividend policy is relevant to firm value (DeAngelo and DeAngelo, 2006). Therefore, MM theorem is a primary or special case and DD theorem is a sophisticated and general understanding on the relationship between dividend payout policy and firm value.

3. Variables and Hypothesis

In this section, we first briefly describe the variables to be examined and the corresponding proxies to be adopted in our study, then formulate the hypothesis.

1) Firm Performance

Firm performance is examined as the dependent variable in this study. Researchers usually use two groups of indicators to assess the performance of firms: accounting performance measures such as return on assets (ROA), return on sales (ROS), and return on equity (ROE) (see, e.g. Grullon et al. 2005; Fan, Wang and

Zhang 2007; and others) and stock performance measures such as stock returns (see, e.g. Fan, Wang and Zhang 2007; and others) and Tobin's Q (see, e.g. Lindenberg and Ross 1981; McConnell and Servaes 1990, 1995; Lang and Stulz 1994; Lins 2003; Sun and Tong 2003; and others).

No single measure is perfect. Accounting measures reflect the past history and can not reflect future cash flows; different accounting principles, rules, methods and standards in different countries make it impossible for direct comparison of accounting performance of the firms in two different countries and accounting information is more frequently and easily subject to manipulation by individual firms (Fisher and McGowan 1983). Stock performance measures are subject to the extent of investor sophistication and stock market efficiency (Hand 1990). Stock returns are not directly comparable between firms and has to be adjusted according to different levels of risk. Tobin's Q is not suitable measures for certain industries (Lins 2003) although Tobin's Q avoids estimation of rates of return or marginal costs or risk adjustment (Lang and Stulz 1994).

Because measurement errors of performance indicators might attenuate the results, we use both accounting performance measures and stock performance measures in our study. ROA is adopted as the accounting performance measure because it is the best available measure to detect abnormal operating performance under most circumstances (Barber and Lyon 1996). As in Grullon et al. (2005), ROA is defined as the operating income before depreciation (EBITDA) scaled by the book value of total assets. ROA is preferable to ROE (or other scaled-earnings variables) for two reasons. First, ROE is sensitive to changes in capital structure while ROA is not (since ROA is measured using EBITDA and not net income). Second, the ROA is not affected by factors such as special items (i.e., unusual and nonrecurring items reported before taxes), accounting for minority interest, and income taxes that usually obscure the ROE (Grullon et al. 2005).

We adopt Tobin's Q as the stock performance measure due to the advantage and popularity associated with Tobin's Q (see, e.g. Lindenberg and Ross 1981; McConnell and Servaes 1990, 1995; Lang and Stulz 1994; Lins 2003; Sun and Tong 2003; and others). In this paper, we compute Tobin's Q as (Market value of equity+book assets-book value of equity)/(book assets) (see, e.g Lins 2003) and apply the fiscal year-end values in the formula.

2) Dividend

Dividend is treated as the explanatory variable in this study. The following measures of dividend payout have been used by researchers: Dividend/Earnings ratio, Dividend Yield, Dividends/Assets ratio, Dividend/Cash-flows ratio, Dividend/Sales ratio and Dividend/Market-capitalization ratio (see, e.g. La Porta et al. 2000a; Faccio, Lang and Young 2001; Gugler 2003; Barclay, Holderness and Sheehan 2009).

There is economic interpretation for some measures such as Dividend/Cash-flows ratio and for some measures the economic interpretation is not transparent such as Dividend/Sales ratio. Each measure has its advantages and disadvantages. For example, Dividend Yield takes an investor's perspective by incorporating the stock price. The problem with this measure is that its variance is determined largely by the variance of the stock price, rather than from changes in dividends. The advantage of Dividends/Assets is that the book value of assets is relatively stable over time. Thus, changes in Dividends/Assets are more likely to result from changes in dividends. All measures have the potential problem of being manipulated by accounting tricks and controlling shareholders (La Porta et al. 2000a; Faccio, Lang and Young 2001; Barclay, Holderness and Sheehan 2009).

Although Dividend/Earnings ratio is the most commonly used measure of dividend payout, spurious correlation might result from this ratio because Earnings is the numerator of ROA – the measure of our dependent variable. Similarly, spurious correlation might result from the ratio of Dividends/Assets because Assets is the common factor in both ROA and Tobin's Q. Thus, we adopt Dividend/Sales ratio in this study to measure the level of dividends payout to avoid spurious correlations between the explanatory variable and the explained variable although there is no obvious economic interpretation for Dividend/Sales ratio. We calculate Dividend/Sales as the ratio of Total Cash Dividends Paid to Net Sales.

3) Controlling Shareholders

Controlling shareholder serves as one of the major control variables in this study. As a type of ownership structure, the controlling shareholder refers to the largest shareholder in a firm with the absolute majority of voting rights. The controlling shareholders can discipline managers to improve operating performance but the controlling shareholders may also expropriate minority shareholders to deteriorate firm performance (see, e.g. Shleifer and Vishny 1986; DeAngelo and DeAngelo 2000; La Porta et al. 2000a; Faccio, Lang and Young 2001; Pinkowitz, Stulz and Williamson 2006; Von Eije and Megginson 2008).

Recognizing complexity of the shareholding patterns in modern corporations, La Porta, Lopez-de-Silanes and Shleifer (1999) introduce the concept of "Ultimate Ownership". By tracing up the chain of ownership, the ultimate owner of a firm is identified as the shareholder who has the most capital and voting rights. When a firm has an ultimate controlling shareholder, the separation of ownership and control or control divergence is a predominant feature that has been noted and examined in the literature (La Porta, Lopez-de-Silanes and Shleifer 1999; Claessens, Djankov and Lang 2000; Faccio, Lang and Young 2001; Claessens et al. 2002; Faccio and Lang 2002; Fan and Wong 2002; Haw et al. 2004; Francis, Schipper and Vincent 2005; Cheung, Rau and Stouraitis 2006; Faccio and Stolin 2006； Doidge et al.2009).

In this study, we adopt the concept of "ultimate ownership" and trace backwards through the network of indirect ownership via other corporations to identify the largest ultimate owner of each corporation with at least 5% of the ultimate control right. We treat both the percentage of the control right and ownership right held by the largest ultimate owner as a continuous variable and calculate the control right and ownership right as in the studies (see, e.g. Claessens, Djankov and Lang 2000). We also measure the extent of control divergence with the ratio of ownership rights to control rights as in Faccio, Lang and Young (2001).

4) Leverage

Leverage is another major control variable in this study. Debt holders might play a monitoring role to enhance firm performance (see, e.g. Jensen and Meckling 1976; Easterbrook 1984), but debt may impose a constraint on dividend payout (see, e.g. Kalay 1982) and interact with other factors to imply more agency cost between debt holders, shareholder and management to worsen firm performance.

The measures of leverage in the literature on dividends include: Debt/Equity (see, e.g. Brigham and Gordon 1968); Debt/Assets (see, e.g. von Eije and Megginson 2008; Faccio, Lang and Young 2001). Regarding the selection of the measures, we follow the advice of Ghandhi (1966) that the use of a proxy should be best suited to the purpose and would depend on the nature of the measure, the stability of the industry, and whether or not comparisons were being made within an industry or between industries. To avoid the possible spurious correlation between leverage and the dependent variables i.e. ROA and Tobin's Q and between leverage and dividends i.e. Dividends/Sales ratio, we measure leverage as the ratio of Debt to Equity expressed as Book Value of Debt/Book Value of Equity.

5) Other Control Variables

Other variables that we examine to control for factors that might have a systematic effect on firm performance include firm size, firm age and GDP. Firms of large size tend to have larger market share and more market power but also encounter bigger agency problems (see, e.g. Sun and Tong 2003). As a firm becomes older, there are more devices to control the agency cost such as by paying out more dividends but there might be less investment opportunities (see, e.g. Easterbrook 1984; Grullon, Michaely and Swaminathan 2002). We measure Firm Size by the logarithm of the firm's total assets (see, e.g. Faccio, Lang and Young 2001; Lins 2003; and others) and measure Firm Age by the logarithm of years since incorporation (see, e.g. Von Eije and Megginson 2008). To control for the general economic condition, we introduce another variable *GDP* measured by the logarithm of the annual GDP into our model.

This paper empirically examines the effect of dividends payout policy on firm performance in the real world while taking into account other important firm-level characteristics and institutional factors. We hypothesize that higher dividend payout is

associated with higher ROA and Tobin’s Q and this positive relationship between dividend and firm performance might be strengthened or weakened by other firm-level characteristics and legal or extra-legal institutions.

4. Sample and Data

To eliminate the extraneous factors from cross-country heterogeneity, we choose to conduct a firm-level analysis within a single country/region. Hong Kong provides an appropriate experimental setting for this study, since Hong Kong follows international accounting standards and the legal and regulatory system, the financial market and the corporate governance practice etc. in Hong Kong are at a level comparable to developed western countries. Moreover, the disclosure is relatively transparent, so the accounting and financial data are more reliable and comparable. The most important is that there is no tax imposed on dividends in Hong Kong, which eliminates the influence of tax on dividend payouts policy and enables a more reliable examination of the role of dividends on firm performance.

In contrast to most U.S. corporations being widely held, two-thirds of publicly listed Hong Kong firms have a family as the controlling shareholder (Claessens, Djankov and Lang 2000)[4] and approximately one-fifth of the firms listed in the exchange have ownerships that can be traced to mainland China (Cheung, Rau and Stouraitis 2006) with the state as the controlling shareholder for many of them. The interaction effect of controlling shareholders and dividends on firm performance and the possible differential effect between family and state owners can be better examined in Hong Kong.

The sample period is chosen from 1998 to 2007 to obtain the most recent insights on the relationship between dividends and firm performance. Some firms launched initial public offerings (IPOs) during this period, so the sample is an unbalanced panel dataset. 1998 and 2007 becomes the two cut-off points because of the Asian financial crisis in 1997 and the worldwide financial crisis triggered by US sub-prime mortgage in 2008. During the crises, the worsened general economic conditions could affect firm operating and stock market performance and bias the results.

Our sample selection starts with all firms listed on the Main Board of the Hong Kong Stock Exchange in 2007. Firms listed on the Growth Enterprise Market of Hong Kong Stock Exchange are excluded to control the possible heterogeneous influence from growth firms because growth firms tend to pay zero dividends. The selection of listed firms in 2007 might imply survival bias but survival bias is not a concern in this study because we are interested in how dividends affect the performance of firms that are still active in the stock market.

[4] The share of the family controlled firms is lower as of the end of fiscal year 2007 according to our manually collected ultimate ownership data.

We further set some criteria for the sample selection. First, as in the literature (see, e.g. Claessens et al 2002; Lins 2003), we exclude "Financial, Utilities and Transportation" firms from our sample and only the firms with the industry classification as "Industrial" in the Datastream are included in the sample. Second, we sort these "Industrial Firms" according to their average market values in 2007 and select the largest 312 firms with an ultimate controlling shareholder. These 312 firms share about 90% of the total market capitalization of all the "Industrial Firms" listed on the Main Board of the Hong Kong Stock Exchange in 2007. In order to be comparable with other studies on control divergence, we include only large firms in the sample. Another reason for choosing large firms is that large firms are more representative of the market and less subject to the behavioral bias of individual investors. Third, as in the paper by Faccio, Lang and Young (2001), we eliminate from the sample the corporations reporting data that are not credible for a functioning business such as negative cash flows, negative earnings, and dividends exceeding sales, cash flow or earnings. Fourth, similar to Rozeff (1982), if a firm launches the IPOs in the sample period, the IPO year's observation is omitted to eliminate the IPO effect. Screened by the criteria mentioned above, our final sample consists of 250 "Industrial Firms" and 1,259 firm-years.

All the financial, accounting and industrial classification data in this study are obtained from Datastream. The annual GDP data is obtained from the website of the Census and Statistics Department of Hong Kong Government. The place of registration data is hand-collected from firms' annual reports. The year of incorporation and the ultimate ownership data are manually collected from the sources such as firms' annual reports, company websites, Hong Kong Stock Exchange, and Datastream.

Regarding the years of incorporation, when different sources provide different years of incorporation, we follow some principles to make a reasonable judgment. First, we treat a firm's annual report and a firm's own website as the most reliable source of information. For example, there is no year of incorporation shown in the annual report for ESPRIT ASIA HOLDINGS LIMITED but the firm's own website specifies 1992 as its year of incorporation. So we record 1992 as the year of incorporation for ESPRIT ASIA HOLDINGS LIMITED and disregard other years from other sources such as 1993 from Datastream and 1981 from Claessens, Djankov and Lang (2000). Second, if no year of incorporation is specified in a firm's annual report or in the firm's own webpage, we combine other information to decide on the year. For example, for CHOW SANG SANG HOLDINGS INTERNATIONAL, we obtain 1934, 1957 and 1992 as the year of incorporation from Businessweek, Datastream and Claessens, Djankov and Lang (2000) respectively. Although there is no specific year of incorporation in the firm's webpage, it says that its heritage spans over 70 years. So we take 1934 from Businessweek as the year of incorporation for CHOW SANG SANG HOLDINGS INTERNATIONAL. Third, if we could only obtain one source of information and could not double check the data, we just record it as the year of incorporation for the firm. For example, Claessens, Djankov and Lang

(2000) provide the only source of information on the year of incorporation for HARBOUR CENTRE DEVELOPMENT LIMITED, so we just copy 1965 as the year of incorporation for the firm. Fourth, if no specific year of incorporation could be obtained from any source, we treat it as a missing value. In the end, there are 246 firms or 1,245 firm-years in the sample with the year of incorporation available.

Being a time-consuming task, the most recent ultimate ownership data for large firms listed on Hong Kong Stock Exchange is only available for the year of 1996, collected by Claessens, Djankov and Lang (2000)[5]. Firms may restructure following the 1997 Asian financial crisis and many firms in the mainland China get listed on the Hong Kong Stock Exchange after 1997. Therefore, the ultimate ownership structure of the sample firms in Claessens, Djankov and Lang (2000) may have changed significantly since 1996 and the sample firms in Claessens, Djankov and Lang (2000) may need to be updated to represent the large firms in the current Hong Kong stock market.

Furthermore, some of the results in the studies (Faccio, Lang and Young 2001; Claessens et al. 2002; Faccio and Lang 2002; Fan and Wong 2002; Haw et al. 2004; Cheung, Rau and Stouraitis 2006) cast doubt on the validity of treating the ownership structure as stable over years. Doidge et al. (2009) also express similar concerns that ownership data may differ over years. For example, in the robustness checks, Cheung, Rau and Stouraitis (2006) replicate all regressions that appear in their paper by adding the control divergence ratio and find that the coefficient of the divergence between cash-flow and control rights is either opposite to the expected signs or lack of statistical significance. Besides the three reasons cited for the lack of explanatory power, another potential reason is that the ownership structure in 1998, 1999 and 2000 (their sample period) is significantly different from that in 1996, so that the result is adversely influence by the large measurement error.

Constrained by resources, we can only manually collect the ultimate ownership data of listed firms on the Hong Kong Stock Exchange for the year of 2007. Following the steps of collecting ultimate ownership data in the literature, we start with the immediate ownership of a corporation, then trace backwards through the network of indirect ownership via other corporations to identify the largest ultimate owner of each corporation with at least 5% of the ultimate control right. As Claessens, Djankov and Lang (2000) specify, the frequency of widely held firms in the final sample is likely overestimated due to this selection criterion, since it is generally easier to identify widely held firms than to trace ultimate ownership. The calculation of ownership rights and control rights is exactly the same as in the paper by Claessens, Djankov and Lang (2000) and we also measure the extent of control divergence with the ratio of ownership rights to control rights as in Faccio, Lang and Young (2001).

[5] These data are posted on the website of Journal of Financial Economics in the “Data and programs used in JFE papers”.

5. Analysis Reports

5.1 Descriptive Statistics

A. Ultimate Ownership

In the sample (Claessens, Djankov and Lang 2000), the 330 Hong Kong firms include both financial and nonfinancial institutions and cover firms both on the Main Board and on the Growth Enterprise Market of the Hong Kong Stock Exchange. In all cases, Claessens, Djankov and Lang (2000) collect the ultimate ownership data as of the end of fiscal year 1996 or the closest possible date. At the 10% and the 20% cutoff levels of control rights, 64.7% and 66.7% of the sampled firms are family controlled respectively; and 3.7% and 1.4% of the sampled firms are state controlled respectively.

We newly assemble data for 312 “Industrial Firms” on the Main Board of Hong Kong Exchange for the purpose of this study and collect the ultimate ownership data as of the end of fiscal year 2007 or the closest possible date. At the 5% cutoff level of control rights, all 312 firms have a controlling shareholder. At the 10% and the 20% cutoff levels, 61.5% and 56.1% of the sampled firms are family controlled respectively; 27.6% and 26.9% of the sampled firms are state controlled respectively.

The comparison of the ultimate control of listed firms in (Claessens, Djankov and Lang 2000) and in this study is shown in Table 1 and the comparison of the separation of cash-flow and voting rights of listed firms in (Claessens, Djankov and Lang 2000) and in this study is presented in Table 2.

<Insert Table 1 here>

<Insert Table 2 here>

Comparing our sample and the sample in (Claessens, Djankov and Lang 2000), we find that there are 59 firms appearing in both samples. A close examination of these 59 firms reveals that the sample in (Claessens, Djankov and Lang 2000) seems no longer to represent the current Hong Kong stock market in terms of market capitalization. For example, HUTCHISON WHAMPOA was the second largest in Hong Kong in terms of market capitalization in 1996, but it became the fifteenth largest and the fifth largest in all the “Industrial Firms” in Hong Kong in terms of market capitalization in 2007.

Generally speaking, there seems more concentration of control and cash flow rights and less divergence between control and cash flow rights by the ultimate

owners over years, especially after the Asian financial crisis in 1997. The notion of widely-held firms in Berle and Means (1932) becomes even less common over years and more cautions should be attached to the interpretation that ownership patterns tend to be stable (La Porta, Lopez-de-Silanes and Shleifer 1999) especially if some major events such as financial crisis occur in the period. Therefore, in this study we use the 2007 ultimate ownership data for the sample period from 1998 to 2007 but it should be noted that there might exist some deviation between the ultimate control as of the end of fiscal year 2007 and the other years in the sample.

B. Descriptive Statistics for Dividends, Firm Performance and Other Variables

<Insert Table 3 here>

Panel A of Table 3 presents the summary statistics[6]. Panel B of Table 3 reports Pearson and Spearman rank correlation coefficients between Dividend, ROA, Tobin's Q and other control variables. Both Pearson and Spearman rank correlation coefficients show that *Dividend* is negatively correlated with *Divergence* and *Leverage* at the 1% significance level consistent with previous studies (Kalay 1982; Faccio, Lang and Young 2001 and Von Eije and Megginson 2008) and is positively correlated with *Size* and *Age* at the 1% significance level consistent with the agency cost and life cycle theories of dividends (Easterbrook 1984; Grullon, Michaely and Swaminathan 2002). Consistent with dividend relevance theories (Easterbrook 1984; DeAngelo and DeAngelo 2006), both Pearson and Spearman rank correlation coefficients indicate the positive correlation between firm performance as measured by ROA and Tobin's Q and dividends payout proxied by Dividend/Sales.

5.2 Multivariate Analysis

To test whether different levels of dividends payout affect firm performance, we deem that the panel data analysis is most appropriate because the different intercepts for individual firms in the panel regression can account for unobserved variables and the panel regression can test both time effect and firm effect (Von Eije and Megginson 2008). To measure the impact of firm specific characteristics such as control divergence, leverage, firm size and firm age, we employ a firm fixed effect regression instead of a random effect regression. The generic regression model, with firm and time subscripts omitted, is specified as follows:

$$\begin{aligned} Performance = {} & \beta_0 + \beta_1 Dividend + \beta_2 Dividend * Divergence \\ & + \beta_3 Dividend * Divergence * Leverage + \beta_4 Divergence \\ & + \beta_5 Control + \beta_6 Leverage + \beta_7 Size + \beta_8 Age + \beta_9 GDP + \varepsilon \end{aligned}$$

[6] It should be noted that the summary statistics for *Control*, *Ownership* and *Divergence* is different from Table 2 because the summary statistics in Table 3 is based on 250 firms rather than 312 firms in Table 2.

Where *Performance* is proxied by ROA or Tobin's Q; *Dividend* is the Dividend/Sales ratio; *Control* is the percentage of control rights held by the controlling shareholder and *Divergence* is the control divergence measured by Ownership Right/Control Right; *Leverage* is the Debt/Equity ratio; *Size* is the logarithm of total assets; *Age* is the logarithm of firm years since incorporation; and *GDP* is the logarithm of the annual GDP in Hong Kong dollars.

According to the dividend relevance theories (see, e.g. Easterbrook 1984; DeAngelo and DeAngelo 2006), the expected sign for the coefficient of *Dividend* should be positive. The presence of a controlling shareholder may provide effective monitoring of the management to enhance firm performance but it may expropriate minority shareholders by less dividend pay out and by the separation of cash flow and voting rights to deteriorate firm performance (Shleifer and Vishny 1986; Faccio, Lang and Young 2001; and La Porta et al. 2002). So the expected sign for the coefficients of *Control*, *Divergence* and the interaction term *Dividend*Divergence* is ambiguous. Debt holders might play a monitoring role but it may also imply agency cost between debt holders, shareholder and management (Jensen and Meckling 1976 and Easterbrook 1984). Firms of large size tend to have larger market share and more market power but also encounter bigger agency problems (Sun and Tong 2003). As a firm becomes older, there are more devices to control the agency cost but there might be less investment opportunities (Easterbrook 1984; Grullon, Michaely and Swaminathan 2002). Therefore, the expected sign for the coefficients of *Leverage*, *Size*, *Age* and the interaction term *Dividend*Divergence*Leverage* is also unclear. When the general economic condition is good, firms tend to have better performance. Hence, the coefficient of *GDP* is expected to be positive.

<Insert Table 4 here>

The four columns in Table 4 are four regression models with different variables entering into the model. In each regression, ROA and Tobin's Q are separately regressed on *Dividend* and other variables to examine whether accounting or stock market firm performance measures react differently to *Dividend* and other variables. The basic model in column (1) includes the independent variables of *Dividend*, *Divergence*, *Control*, *Leverage* and *Size*. Column (2) introduces the interaction term *Dividend*Divergence* and column (3) further introduces another interaction term *Dividend*Divergence*Leverage* into the model. *Age* and *GDP* enter the model in column (4). The F-statistics are significant at the 1% level for all the four models. The adjusted R^2 is similar for model (1), (2) and (3) and is higher in model (4). The coefficient of *Dividend* is positive at the 10% level with Tobin's Q as the dependent variable in column (1) and not significant in other models. Neither of the interaction terms is significant in the four models. Given the modest explanatory power of the models and the uneven results, performing robustness checks is necessary.

5.3 Robustness Checks

Problem of Outliers:

To alleviate the influence of extreme values, we censor our sample at the 1% level by dropping 0.5% in each tail of each variable. Following Fama and French (1998) and Pinkowitz, Stulz and Williamson (2006), we trim based on the full sample so that while we trim 1% of the observations for each of the eight variables, i.e. *ROA*, *Tobin's Q*, *Dividend*, *Divergence*, *Control*, *Leverage*, *Size*, *Age*, we lose only 6.5% of the total observations and 1,164 firm-years remains in the sample. Column (1) in Table 5 shows the results.

<Insert Table 5 here>

Although the adjusted R^2 of the model in column (1) of Table 5 is higher than the four models in Table 4, the coefficient of *Dividend* is not significant either for ROA or for Tobin's Q. The coefficient of the interaction term *Dividend*Divergence*Leverage* becomes significant at the 10% level for ROA.

Nonlinearity:

Prior literature suggests the potential nonlinearities in the relation between dividends and earnings (see, e.g. Grullon et al. 2005) and the nonlinear relation between firm control and firm performance (see, e.g. Anderson and Reeb 2003), so we include two variables i.e. $Dividend^2$ and $Control^2$ in the regression to control for the nonlinearity and the results are shown in column (2) of Table 5.

The coefficient of $Dividend^2$ is significant at the 1% level for both ROA and Tobin's Q and the coefficient of $Control^2$ is significant at the 1% level for ROA and at the 5% level for Tobin's Q, which indicate the nonlinear relationship between dividends and firm performance and between ownership and firm performance. When ROA is the dependent variable, the coefficient of *Dividend* is positive and significant at the 1% level, which is consistent with the prediction of the dividend relevance theories (see, e.g. Easterbrook 1984; DeAngelo and DeAngelo 2006); the coefficient of the interaction term *Dividend*Divergence* is not significant but the coefficient of *Dividend*Divergence*Leverage* is negative and significant at the 1% level, which implies that the positive effect of dividends payout on ROA is weakened mainly by the interaction between dividends and leverage. When Tobin's Q is the dependent variable, the coefficient of *Dividend* is positive and significant at the 10% level, consistent with the prediction of the dividend relevance theories (see, e.g. Easterbrook 1984; DeAngelo and DeAngelo 2006), but neither of the coefficients of the interaction terms is significant.

Sub-samples Based on the Identity of Ultimate Owners and Place of

Registration:

The existing literature documents that firm performance is affected by the ownership structure (see, e.g. Anderson and Reeb 2003; Fan, Wang and Zhang 2007). Also Gugler (2003) and Von Eije and Megginson (2008) document that state-controlled firms in Europe pay higher dividends, so we split the sample into sub-samples according to whether the ultimate controlling shareholder is a state or a family.

<Insert Table 6 here>

Although our study is not designed to examine whether the dividends payout is different between state-controlled firms and family controlled firms, we are able to make a simple comparison with the data at hand. Panel A of Table 6 reports the mean comparison of Dividend/Sales ratios between state-controlled and family controlled firms. There is no statistically significant difference between the ratios of Dividend/Sales for the state controlled and the family controlled firms, which is inconsistent with the findings of Gugler (2003) and Von Eije and Megginson (2008). The explanation might be due to the unique characteristic of non-tradable shares in the state controlled firms in China.

Panel B of Table 6 presents the regression results of family and state-controlled firms. For family controlled firms, *Dividend* has a positive effect on ROA at the 1% level and the positive effect is weakened by the interaction with leverage, which can be inferred from the negative coefficient of *Dividend*Divergence*Leverage* at the 10% level. For state controlled firms, neither Dividend nor the interaction terms have statistically significant effect on ROA. For both family and state controlled firms, neither *Dividend* nor the interaction terms have statistically significant effect on Tobin's Q.

The legal institutions such as the law origin and the enforcement system, and the extra-legal institutions such as market competition and tax compliance might also influence firm performance (see, e.g. La Porta et al. 1998, 2000b&2002; Djankov et al. 2008; Dyke and Zingales 2004). Therefore, we divide the sample into sub-samples according to the place of registration to examine the effect of these institutional factors. A firm is classified as a Mainland China firm if the firm is incorporated in Mainland China; as a Hong Kong firm if the firm is incorporated in Hong Kong and as an Other firm if the firm is incorporated in places other than mainland China or Hong Kong such as Bermuda, British Virgin Island or Cayman Island. It should be noted that this study is not specially designed to properly test the institutional factors and it is only a coarse partition of the data based on the place of registration. Table 7 reports the regression results for Mainland China firms, Hong Kong firms and Other firms.

<Insert Table 7 here>

Dividend and the interaction terms have no statistically significant effect on Tobin's Q across Mainland China firms, Hong Kong firms and Other firms but the situation is different when ROA is the dependent variable. Neither *Dividend* nor the interaction terms have statistically significant impact on ROA for Mainland China firms. The coefficient of *Dividend* is positive and significant at the 10% level for Hong Kong firms. For Other firms, the coefficient of *Dividend* is positive and significant at the 1% level and this positive effect is weakened mainly by leverage, which can be inferred from the statistically negative coefficient of the interaction term *Dividend*Divergence*Leverage* at the 1% level. The result is consistent with that for family and state controlled firms because there is certain degree of overlapping between state controlled firms and Mainland China firms.

Sample Period and Time Series Dependence:

<Insert Table 8 here>

The year of 2003 might bias the results because of the outbreak of "SARS" in Hong Kong, so we eliminate the observations in 2003 and report the regression results in column (1) of Table 8. *Dividend* has a positive effect on ROA at the 1% significance level but the statistically negative coefficient of the interaction term *Dividend*Divergence*Leverage* at the 1% level indicates the mitigation of the positive impact of dividends payout on ROA. *Dividend* has a positive effect on Tobin's Q at the 10% significance level and neither of the interaction terms has significant impact on Tobin's Q.

The time-series dependence or the firm effect and the cross-sectional dependence or the time effect are most common in panel data analysis, which might produce biased standard errors when estimated by techniques such as OLS, White, Newey-West or Fama-MacBeth (Petersen 2009). "When both a firm and a time effect are present in the data, researchers can address one parametrically (e.g., by including time dummies) and then estimate standard errors clustered on the other dimension (Petersen 2009)." Therefore, we include year dummies in our regression[7] and the result is shown in column (2) of Table 8. The sign and significance of the coefficients of Dividend and the interaction terms are similar to the results when the year of 2003 is excluded from the sample as described above.

Endogeneity of Dividends:

Our regression specification assumes the exogeneity of dividends payout but according to the previous literature, it is possible that firm performance and dividends payout are simultaneously determined. To address this concern, we conduct a two-stage least squares estimation (2SLS) using instrumental variables as indicated by the literature (Faccio, Lang and Young 2001; Ferris, Sen and Yui 2006; Denis and

[7] It should be noted that *GDP* is dropped from the regression due to its high collinearity with the year dummies.

Osobov 2008; Von Eije and Megginson 2008). Specifically, in the first-stage regression, Dividend is estimated on Control, Divergence, Leverage, Size, Age and Control2. In the second-stage regression, ROA and Tobin's Q is estimated on *Dividend*, *Divergence*, *Leverage*, *Size* and *Age* to avoid the problems of under-identification and multicollinearity. Table 9 presents the 2SLS regression results.

<Insert Table 9 here>

Dividend has a positive effect on both ROA and Tobin's Q at the 5% significance level. However, the interpretation of the result should be with caution because the interpretation of the 2SLS results depends on successfully identifying the right instruments and a well-specified model (Bushman and Smith 2001).

6. Conclusion

In the investigative setting of Hong Kong characterized by relatively developed financial and legal systems, and free commercial environment with no tax imposed on dividends, this study empirically tests whether dividends payout has a positive contribution to firm performance as predicted by dividends relevance theories (see, e.g. Easterbrook 1984; DeAngelo and DeAngelo 2006) while taking into account firm level characteristics such as the divergence between the control rights and the ownership rights of controlling shareholders, firm leverage, firm size and firm age. The univariate analysis shows that dividends payout is positively related to firm performance in terms of both ROA and Tobin's Q. The results of the multivariate regressions show that dividends payout has a statistically significant positive impact on both ROA and Tobin's Q after controlling for the nonlinearity between dividends and firm performance and between firm control and firm performance, which complements the existing literature with a preliminary empirical evidence supporting the theories. The results from this study provide the practitioners and policy makers with empirical evidences to justify their decisions in practice and regulations to encourage firms to adopt more generous dividend payout policies.

The control divergence between the control rights and the ownership rights of the ultimate controlling shareholder is an important factor to be examined in our study but the most recent ultimate ownership data for firms listed on Hong Kong Stock Exchange is only available as of the end of fiscal year 1996 (see, e.g. Claessens, Djankov and Lang 2000). The facts that firms have gone through major restructuring since the Asian financial crisis in 1997 and that many firms from mainland China get listed on the Hong Kong Stock Exchange after 1997 make it necessary to update the ultimate ownership data. Therefore, we manually collect the ultimate ownership data as of the end of fiscal year 2007 and find that there seems more concentration of control and cash flow rights and less divergence between control and cash flow rights by the ultimate owners over years, especially after the Asian financial crisis in 1997.

The notion of widely-held firms in Berle and Means (1932) becomes even less common over years and more cautions should be attached to the interpretation that ownership patterns tend to be stable (La Porta, Lopez-de-Silanes and Shleifer 1999) especially if some major events such as financial crisis occur in the period, which manifest as the listing or delisting of firms, mergers and acquisitions, and more concentration of control.

The regression results do not show significant interaction effect of dividends payout and control divergence on firm performance while controlling for nonlinearity but the impact of dividends payout on firm performance varies for firms controlled by different identities. For example, the positive impact of dividends payout on ROA is mitigated by the interaction between dividends and leverage for family controlled firms but neither dividends payout nor the interaction terms have significant effect on ROA for state-controlled firms. Also state-controlled firms do not seem to pay higher dividends than family controlled firms compared to the European counterparts as documented by Gugler (2003) and Von Eije and Megginson (2008), which might be due to the unique characteristics of non-tradable shares in the state controlled firms in China.

We also conduct a coarse analysis based on the partition of data according to the place of registration to test the effect of institutional factors and find that the impact of dividends payout on ROA varies across Mainland China firms, Hong Kong firms and Other firms. The result is consistent with that for family and state controlled firms because there is certain degree of overlapping between state controlled firms and Mainland China firms.

Generally speaking, dividends payout seems to play a discipline role on management and enhances firm performance but the significance of the positive effect of dividends payout on Tobin's Q attenuates compared with its effect on ROA. The attenuation of the positive effect of dividends payout on Tobin's Q might be due to the ownership concentration and control divergence that weaken the value relevance of financial accounting data or reduces the number of analysts covering a company (Fan and Wang 2002; Lang, Lins and Miller 2004). Therefore, ownership structure serves as an important factor to be considered by policy makers in the design of optimal investor protection rules such as mandatory dividends payout.

Nonetheless, we must post three major cautions against the interpretation of the results of this study. First, we focus exclusively on dividends. Stock repurchase might play a similar role although it can be discriminatory (see, e.g. Easterbrook 1984; La Porta et al. 2000a). It is difficult to disentangle the effects of the various factors, so the results of this study can only be interpreted as tilting toward certain theories and we cannot completely exclude alternate explanations. Second, since this paper studies only large and mature firms in Hong Kong with its unique legal and economic environments, the generality to small and growth firms or firms in other countries is unwarranted. Third, we have exercised due diligence regarding data collection and

analysis but it is unavoidable for the findings of this paper to be influenced by some unmanageable factors such as omitted variables. Also regression analysis only indicates association and we can not establish causality even with the control for simultaneity. These limitations also provide avenues for future research.

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Table 1: Comparison of Ultimate Control of Listed Firms in Hong Kong

The 330 firms in Claessens, Djankov and Lang (2000) include both financial and nonfinancial institutions and cover firms both on the Main Board and on the Growth Enterprise Market of the Hong Kong Stock Exchange. In all cases, Claessens, Djankov and Lang (2000) collect the ultimate ownership data as of the end of fiscal year 1996 or the closest possible date. We newly assemble data for 312 "Industrial Firms" on the Main Board of Hong Kong Exchange and collect the ultimate ownership as of the end of fiscal year 2007 or the closest possible date. This table presents the share of family controlled and state-controlled firms in the two samples at the 10% and 20% cutoff levels of control rights respectively.

	Number of Corporations	Family-Controlled (%)	State-Controlled (%)
10% cutoff			
Claessens, Djankov and Lang (2000)	330	64.7	3.7
This study	312	61.5	27.6
20% cutoff			
Claessens, Djankov and Lang (2000)	330	66.7	1.4
This study	312	56.1	26.9

Table 2: Comparison of Separation of Cash-flow and Voting Rights in Listed Firms in Hong Kong (Largest Control Holder)

The 330 firms in Claessens, Djankov and Lang (2000) include both financial and nonfinancial institutions and cover firms both on the Main Board and on the Growth Enterprise Market of the Hong Kong Stock Exchange. In all cases, Claessens, Djankov and Lang (2000) collect the ultimate ownership data as of the end of fiscal year 1996 or the closest possible date. We newly assemble data for 312 "Industrial Firms" on the Main Board of Hong Kong Exchange and collect the ultimate ownership as of the end of fiscal year 2007 or the closest possible date. This table presents the summary statistics of the ownership rights, control rights and control divergence ratio of the largest controlling shareholders for the firms in the two samples respectively.

	Number of Corporations	Mean	Standard Deviation	Median	1st Quartile	3rd Quartile
A. Cash-flow rights/Ownership rights						
Claessens, Djankov and Lang (2000)	330	24.30%	11.43%	18.67%	17.43%	29.68%
This study	312	42.60%	19.50%	42.51%	27.86%	56.22%
B. Voting rights/Control rights						
Claessens, Djankov and Lang (2000)	330	28.08%	11.73%	19.64%	19.22%	37.95%
This study	312	46.61%	17.13%	47.95%	34.95%	58.54%
C. Ratio of cash-flow to voting rights/Divergence						
Claessens, Djankov and Lang (2000)	330	0.882	0.214	1.000	0.800	1.000
This study	312	0.893	0.215	1.000	0.951	1.000

Table 3: Descriptive Statistics for Variables in the Sample

Dividend is the ratio of total cash dividends paid to net sales. *Leverage* is the ratio of the book value of debt to the book value of equity. *Size* is the logarithm of the firm's total assets. *ROA* is the operating income before depreciation (EBITDA) scaled by the book value of total assets. *Tobin's Q* is the market value of equity plus book assets less the book value of equity, all divided by assets. The financial and accounting data needed for the aforementioned variables are obtained from Datastream. *Age* is the logarithm of years since firm incorporation. *Control* is the percentage of voting rights held by the largest ultimate owner as of the end of fiscal year 2007. *Ownership* is the percentage of cash flow rights held by the largest ultimate owner as of the end of fiscal year 2007. *Divergence* is the ratio of *Ownership* to *Control*. The year of incorporation and the ultimate ownership data are manually collected from the sources such as firms' annual reports, company websites, Hong Kong Stock Exchange and Datastream. The sample period is from 1998 to 2007 and the number of observations is 1,245 firm-years for *Age* and 1,259 firm-years for all other variables. ** and * indicate statistical significance at the 1% level and at the 5% level (2-tailed) respectively.

Panel A: Distributional Statistics

	Dividend	*Control*	*Ownership*	*Divergence*	*Leverage*	*Size*	*Age*	*ROA*	*Tobin's Q*
Mean	0.054	0.451	0.417	0.905	0.402	22.388	2.650	0.128	1.526
Median	0.025	0.462	0.420	1.000	0.264	22.231	2.639	0.115	1.131
Std. Dev.	0.087	0.163	0.185	0.204	0.477	1.388	0.968	0.081	1.255
Minimum	0.000	0.059	0.030	0.143	0.000	17.951	0.000	0.001	0.255
Maximum	0.953	0.863	0.863	1.000	7.322	27.689	4.796	0.597	11.505

Panel B: Spearman Rank (above the Diagonal) and Pearson (below the Diagonal) Correlations

	Dividend	*Control*	*Ownership*	*Divergence*	*Leverage*	*Size*	*Age*	*ROA*	*Tobin's Q*
Dividend		0.048	0.000	-0.090**	-0.351**	0.190**	0.194**	0.169**	0.171**
Control	-0.037		0.908**	0.225**	-0.048	0.132**	-0.128**	-0.033	-0.013

Ownership	-0.100**	0.907**		0.544**	-0.003	0.152**	-0.145**	-0.009	-0.018
Divergence	-0.161**	0.243**	0.594**		0.092**	0.126**	-0.044	0.003	-0.042
Leverage	-0.218**	-0.031	-0.009	0.048		0.263**	-0.202**	-0.226**	-0.117**
Size	0.182**	0.168**	0.184**	0.116**	0.153**		-0.081**	-0.180**	0.003
Age	0.102**	-0.160**	-0.163**	-0.034	-0.089**	-0.027		-0.023	-0.052
ROA	0.021	-0.058*	-0.032	0.000	-0.174**	-0.105**	-0.015		0.522**
Tobin's Q	0.073**	-0.045	-0.050	-0.029	-0.123**	-0.042	0.022	0.474**	

Table 4: Regressions of Firm Performance on Dividends, Controlling Shareholders' Control Divergence and Other Variables (Standard Errors in Parentheses)

We estimate firm fixed effect regressions. The four columns are four regression models with different variables entering into the model. In each regression, ROA and Tobin's Q are separately regressed on Dividend and other variables. The basic model in column (1) includes the independent variables of *Dividend*, *Divergence*, *Control*, *Leverage* and *Size*. Column (2) introduces the interaction term *Dividend*Divergence* and column (3) further introduces another interaction term *Dividend*Divergence*Leverage* into the model. Age and GDP enter the model in column (4). GDP is the logarithm of the annual GDP of Hong Kong and is obtained from the website of the Census and Statistics Department of Hong Kong Government. The definitions of the variables are given in Table 3 and the sample period is from 1998 to 2007. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

		(1)		(2)		(3)		(4)	
	Expected Sign	ROA	Tobin's Q	ROA	Tobin's Q	ROA	Tobin's Q	ROA	Tobin's Q
Intercept	(?)	0.238 *** (0.037)	2.325*** (0.585)	0.235 *** (0.038)	2.493*** (0.600)	0.229*** (0.039)	2.584*** (0.611)	-2.785*** (0.717)	-105.881*** (10.905)
Dividend	(+)	0.001 (0.028)	0.753* (0.432)	0.030 (0.085)	-0.804 (1.323)	0.036 (0.085)	-0.898 (1.328)	0.064 (0.085)	-0.494 (1.289)
*Dividend*Divergence*	(?)			-0.038 (0.101)	1.963 (1.576)	-0.031 (0.101)	1.855 (1.582)	-0.054 (0.101)	1.303 (1.538)
*Dividend*Divergence*Leverage*	(?)					-0.091 (0.124)	1.551 (1.944)	-0.115 (0.124)	1.225 (1.882)
Divergence	(?)	0.012 (0.012)	-0.014 (0.181)	0.015 (0.014)	-0.158 (0.215)	0.016 (0.014)	-0.169 (0.215)	0.023 (0.014)	-0.117 (0.210)
Control	(?)	-0.029 ** (0.014)	-0.315 (0.226)	-0.029 ** (0.014)	-0.307 (0.226)	-0.029** (0.014)	-0.315 (0.226)	-0.035 ** (0.015)	-0.364 (0.222)
Leverage	(?)	-0.028 *** (0.005)	-0.285 *** (0.077)	-0.028 *** (0.005)	-0.280*** (0.077)	-0.027*** (0.005)	-0.299*** (0.081)	-0.026*** (0.005)	-0.279*** (0.079)
Size	(?)	-0.004 ** (0.002)	-0.025 (0.027)	-0.004 ** (0.002)	-0.028 (0.027)	-0.004** (0.002)	-0.031 (0.027)	-0.005*** (0.002)	-0.071*** (0.027)

Age	(?)							-0.004 (0.002)	-0.007 (0.036)
GDP	(+)							0.109*** (0.026)	3.914 (0.392)
Adj. R^2		3.6%	1.6%	3.6%	1.7%	3.5%	1.6%	4.8%	8.9%
F-statistics		10.455 ***	5.152 ***	8.730 ***	4.554 ***	7.557 ***	3.993 ***	7.990 ***	14.458 ***
No. of observation		1,259	1,259	1,259	1,259	1,259	1,259	1,245	1,245

Table 5: Robustness Checks by Excluding Outliers and Controlling for Nonlinearity (Standard Errors in Parentheses)

To alleviate the influence of extreme values, we censor our sample at the 1% level by dropping 0.5% in each tail of each variable, i.e. ROA, Tobin's Q, *Dividend*, *Divergence*, *Control*, *Leverage*, *Size*, *Age* and the regression estimates are shown in column (1). To control for the nonlinearity, the two variables i.e. $Dividend^2$ and $Control^2$ are introduced in the regression as shown in column (2). The sample period is from 1998 to 2007and the definitions of the variables in the regressions are given in Tables 3 and 4. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

	Excluding outliers (1)		Control for nonlinearity (2)	
	ROA	Tobin's Q	ROA	Tobin's Q
Intercept	-2.868 *** (0.667)	-93.604 *** (9.600)	-2.699*** (0.706)	-105.802*** (10.869)
Dividend	0.076 (0.097)	-1.025 (1.397)	0.411*** (0.103)	3.023* (1.590)
*Dividend*Divergence*	0.053 (0.123)	3.169* (1.775)	-0.159 (0.101)	0.450 (1.549)
*Dividend*Divergence*Leverage*	-0.241* (0.138)	-0.591 (1.991)	-0.358*** (0.131)	-1.367 (2.014)
Divergence	0.031** (0.014)	-0.214 (0.200)	0.041*** (0.014)	0.049 (0.212)
Control	-0.051 *** (0.014)	-0.495 ** (0.201)	-0.288*** (0.054)	-2.026** (0.824)
Leverage	-0.033*** (0.006)	-0.301*** (0.091)	-0.017*** (0.005)	-0.188** (0.082)
Size	-0.006*** (0.002)	-0.054** (0.026)	-0.006 *** (0.002)	-0.078*** (0.027)
$Dividend^2$			-0.465*** (0.092)	-4.952 *** (1.416)
$Control^2$			0.273*** (0.057)	1.762** (0.884)
Age	-0.003 (0.002)	-0.016 (0.033)	-0.004 * (0.002)	-0.018 (0.036)
GDP	0.112 *** (0.024)	3.465*** (0.345)	0.107*** (0.025)	3.921*** (0.391)
Adj. R^2	8.5%	10.4%	8.2%	9.9%
F-statistics	12.932***	16.047***	11.075***	13.414***
No. of observation	1,164	1,164	1,245	1,245

Table 6: Comparison of Family and State Controlled Firms (Standard Errors in Parentheses)

We compare the Dividend/Sales ratios between state-controlled and family controlled firms in Panel A, where Dividend/Sales is the ratio of total cash dividends paid to net sales. We estimate the regressions for family and state controlled firms in Panel B. The sample period is from 1998 to 2007and the definitions of the variables in the regressions are given in Tables 3 and 4. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

Panel A: Mean Comparison				
	Dividend/Sales			
	Family	State		
No. of Observations	683	368		
Mean	0.050	0.058		
Mean Difference (Family-State)	-0.008			
Panel B: Regression Analysis				
	ROA		Tobin's Q	
	Family	State	Family	State
Intercept	-2.439 ***	0.524	-97.496***	-96.388***
	(0.873)	(1.413)	(16.588)	(16.816)
Dividend	0.530***	0.223	3.689	-1.854
	(0.121)	(0.282)	(2.301)	(3.361)
*Dividend*Divergence*	0.009	-0.249	1.874	3.258
	(0.120)	(0.253)	(2.287)	(3.016)
*Dividend*Divergence*Leverage*	-0.322*	-0.221	-1.512	3.057
	(0.180)	(0.218)	(3.422)	(2.596)
Divergence	0.039***	0.098*	0.008	0.446
	(0.015)	(0.056)	(0.282)	(0.667)
Control	-0.107	-0.077	1.543	-1.301
	(0.079)	(0.134)	(1.493)	(1.593)
Leverage	-0.022***	0.007	-0.279**	-0.004
	(0.007)	(0.008)	(0.141)	(0.098)
Size	-0.015***	0.014***	-0.117***	0.077
	(0.002)	(0.004)	(0.046)	(0.042)
$Dividend^2$	-0.730***	-0.055	-6.764***	0.039
	(0.115)	(0.214)	(2.185)	(2.542)
$Control^2$	0.090	0.125	-1.378	0.373
	(0.090)	(0.131)	(1.714)	(1.559)
Age	-0.008**	0.007	-0.046	-0.002
	(0.003)	(0.006)	(0.060)	(0.067)
GDP	0.104***	-0.030	3.630***	3.436***
	(0.031)	(0.051)	(0.596)	(0.608)
Adj. R^2	20.1%	5.5%	9.8%	13.9%
F-statistics	16.382***	2.954***	7.643***	6.369***
No. of observation	674	368	674	368

Table 7: Comparison of Mainland China Firms, Hong Kong Firms and Other Firms (Standard Errors in Parentheses)

We divide the sample into sub-samples according to the place of registration and estimate the regressions. A firm is classified as a Mainland China firm if the firm is incorporated in the mainland China; as a Hong Kong firm if the firm is incorporated in Hong Kong and as an Other firm if the firm is incorporated in places other than mainland China or Hong Kong. The place of registration data is hand-collected from firms' annual reports. The sample period is from 1998 to 2007and the definitions of the variables in the regressions are given in Tables 3 and 4. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

	ROA			Tobin's Q		
	China	Hong Kong	Other	China	Hong Kong	Other
Intercept	-1.907* (1.071)	-4.189** (1.732)	-0.675 (0.926)	-129.461*** (15.822)	-65.293*** (20.467)	-87.307*** (17.022)
Dividend	0.169 (0.257)	0.373* (0.216)	0.702*** (0.214)	-2.636 (3.793)	2.382 (2.552)	5.341 (3.935)
*Dividend*Divergence*	0.049 (0.258)	-0.375 (0.237)	0.035 (0.229)	3.414 (3.807)	-0.991 (2.797)	3.255 (4.201)
*Dividend*Divergence*Leverage*	-0.184 (0.202)	-0.349 (0.287)	-0.606 *** (0.206)	3.856 (2.985)	-3.456 (3.396)	-5.709 (3.793)
Divergence	0.068 (0.045)	0.041 (0.032)	0.054 *** (0.018)	0.063 (0.665)	0.185 (0.383)	-0.030 (0.322)
Control	-0.083 (0.083)	-0.159 (0.127)	-0.360*** (0.084)	-2.020 (1.225)	-2.588* (1.502)	-1.189 (1.539)
Leverage	-0.027*** (0.010)	0.004 (0.009)	-0.021*** (0.008)	0.033 (0.147)	-0.137 (0.109)	-0.297** (0.148)
Size	0.028 *** (0.003)	-0.006 (0.004)	-0.007** (0.003)	0.131*** (0.049)	0.025 (0.044)	-0.050 (0.054)
Dividend^2	-0.264 (0.188)	-0.087 (0.159)	-1.001*** (0.204)	0.977 (2.780)	-2.306 (1.882)	-9.238** (3.745)
Control^2	0.019 (0.075)	0.159 (0.151)	0.330*** (0.092)	0.798 (1.113)	2.139 (1.787)	1.330 (1.693)
Age	0.015*** (0.005)	-0.005 (0.006)	-0.006* (0.003)	-0.065 (0.073)	-0.041 (0.070)	-0.004 (0.060)
GDP	0.048 (0.039)	0.159** (0.063)	0.036 (0.033)	4.597*** (0.572)	2.387*** (0.742)	3.231*** (0.616)
Adj. R^2	30.9%	2.5%	18.1%	27%	3.6%	10.4%
F-statistics	11.564***	1.764*	14.048***	9.729***	2.130**	7.833***
No. of observation	261	334	650	261	334	650

Table 8: Further Robustness Checks by Excluding the Observations in 2003 and by Including Year Dummies (Standard Errors in Parentheses)

We estimate the regressions by excluding the observations in 2003 in column (1) and by including year dummies in column (2). The sample period is from 1998 to 2007and the definitions of the variables in the regressions are given in Tables 3 and 4. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

	Excluding 2003 (1)		Year Dummies (2)	
	ROA	Tobin's Q	ROA	Tobin's Q
Intercept	-2.854*** (0.758)	-120.964*** (11.976)	0.282*** (0.041)	3.343*** (0.626)
Dividend	0.423*** (0.106)	3.169* (1.668)	0.426*** (0.103)	3.074* (1.582)
*Dividend*Divergence*	-0.158 (0.104)	0.331 (1.638)	-0.160 (0.101)	0.566 (1.541)
*Dividend*Divergence*Leverage*	-0.388*** (0.133)	-1.159 (2.096)	-0.375*** (0.131)	-1.039 (2.008)
Divergence	0.044*** (0.014)	0.082 (0.225)	0.041*** (0.014)	0.016 (0.211)
Control	-0.286*** (0.055)	-2.058** (0.876)	-0.286*** (0.053)	-1.996** (0.818)
Leverage	-0.017*** (0.005)	-0.186** (0.087)	-0.017*** (0.005)	-0.180** (0.082)
Size	-0.006*** (0.002)	-0.088*** (0.029)	-0.005*** (0.002)	-0.079*** (0.027)
$Dividend^2$	-0.475*** (0.094)	-4.908*** (1.479)	-0.492*** (0.092)	-5.192*** (1.413)
$Control^2$	0.266*** (0.059)	1.820* (0.938)	0.271*** (0.057)	1.689* (0.879)
Age	-0.003 (0.002)	-0.006 (0.039)	-0.005** (0.002)	-0.029 (0.036)
GDP	0.112*** (0.027)	4.467*** (0.431)		
Year Dummies Included	No	No	Yes	Yes
Adj. R^2	8.6%	11.1%	8.6%	11.1%
F-statistics	10.540***	13.680***	7.159***	9.197***
No. of observation	1,115	1,115	1,245	1,245

Table 9: Two Stage Least-Squares Estimates of Firm Performance on Dividends (Standard Errors in Parentheses)

This table shows the results of the second-stage regression estimation. The sample period is from 1998 to 2007and the definitions of the variables in the regressions are given in Tables 3 and 4. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

	Dependent Variable	
	ROA	Tobin's Q
Constant	0.636***	5.756***
	(0.183)	(1.906)
Dividend	1.856**	16.211 **
	(0.766)	(7.990)
Divergence	0.151**	1.080
	(0.063)	(0.659)
Leverage	0.054	0.400
	(0.035)	(0.366)
Size	-0.032***	-0.267**
	(0.012)	(0.125)
Age	-0.016**	-0.106
	(0.008)	(0.079)
Adj. R^2	0.9%	0.8%
F-statistics	3.235***	2.943**
No. of observation	1,245	1,245