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Is dividend smoothing universal? New insights from a comparative study of dividend policies in Hong Kong and the U.S.

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ABSTRACT

In this paper, we develop new insights about the dynamics of corporate dividend policy by performing the natural experiment of comparing corporate dividend policies in Hong Kong and the U.S., two economies where the tax regime and equity ownership structure are significantly different. Our empirical results can be summarized as follows. First, a test of the Lintner model reveals that the extent of dividend smoothing by firms in Hong Kong is significantly less than those in the U.S. Second, the signaling effects of dividend changes on stock returns are stronger in the U.S. compared to those in Hong Kong. Third, our logit analysis of the determinants of dividend changes indicates that, while the lagged dividend yield significantly affects dividend changes in both countries in the same fashion, prior year stock returns have opposite effects on dividend changes in the two countries. Finally, the extent of dividend smoothing is not systematically related to blockholder equity ownership in either country. Overall, our results suggest that, compared to U.S. firms, Hong Kong firms pursue a more flexible dividend policy commensurate with earnings, and that the differences between the dividend policies of firms in the two countries are consistent with the signaling implications of the differences in the tax regime across the two countries.

1. Introduction

Ever since Lintner (1956), dividend policy in the United States has been extensively studied. Despite the adverse tax effects of dividends versus capital gains, many U.S. corporations pay out dividends, tend to smooth dividends over time, and are reluctant to cut dividends quickly even when internal funds are insufficient for good investment opportunities. The information content of dividend changes and dividend smoothing in the U.S. equity market have been well documented. One natural question that arises in this context is whether similar phenomena exist in other economies which have significantly different institutional features or tax structures.

One example of an equity market with a tax regime, as well as equity ownership structure, significantly different from the U.S. is Hong Kong. In Hong Kong, capital gains and dividends are not taxable for individuals, and inter-company dividends are not taxable for corporations.[1] The Hong Kong government adopts a hands-off policy towards industry and trade and implements a

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[1] During the sample period covered by our study, dividends were taxed mostly as ordinary income at the personal level in the U.S., subject to a higher tax rate on average than capital gains, barring a brief period after the 1986 Tax Reform Act, when dividends and capital gains were both taxed at 28%. Of course, in 2003, the tax rate on dividends was dropped to 15% to match the tax rate on capital gains, thus nullifying the tax disadvantage of dividends: however, this is beyond our sample period. Apart from the differences in the actual tax rate, capital gains are taxable only when realized, which makes the effective tax rate on capital gains in the U.S. even lower compared to dividends, which are taxable in the year they are received.

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simple and low corporate tax structure.[2] There is free flow of capital, free trade, and no foreign exchange control. Further, Hong Kong companies have traditionally turned to the banks for capital, preferring high gearing to dilution of ownership. Interlocking directorships are prevalent throughout the smaller scale, Chinese-owned sector of the manufacturing industry in Hong Kong. As a result, the Hong Kong stock market is characterized by a much larger proportion of closely held firms compared to the U.S. equity market.

Thus Hong Kong, with its tax and equity ownership structure quite different from the U.S., presents an excellent environment for research from an international perspective and to understand the effects of capital market imperfections on corporate financial policies. By comparing corporate dividend policies in Hong Kong and the U.S., we hope to answer the following questions. First, what are the intertemporal characteristics of dividend payments in Hong Kong, and how do they compare with those in the U.S? Second, are dividend signaling effects in Hong Kong different from those in the U.S.? In particular, how do dividend increases and decreases as well as dividend initiations and omissions affect stock returns in the two countries, and are these effects different across these countries? Third, what are the fundamental factors driving the dividend decisions in these two economies? In this paper we address these issues empirically by comparing the dividend policies of a sample of industrial and commercial firms in Hong Kong and the U.S. over the same time period. We use the Global Vantage database, an international equity database, for our study.

The theoretical basis for our study is the asymmetric information framework developed by Bhattacharya (1979), John and Williams (1985), and Miller and Rock (1985). They demonstrate that in an asymmetric information environment, dividends signal firm insiders' private information about the firm's future prospects and therefore affect its equity market value. While the above are one-period models, John and Nachman (2000) analyze a multi-period model of dividend smoothing. In their setting, dividend smoothing is generated by a combination of the need of firms to signal their private information in an asymmetric information setting with differential taxation of dividends and capital gains with their desire to strategically raise a greater amount of external financing during periods when the extent of asymmetric information they face in the equity market is lower.

The theoretical literature has thus identified the scenarios under which dividend changes convey insiders' private information to the equity market and under which management chooses to smooth dividend payments. The implications of the above theoretical models seem to fit rather well with the results of previous empirical studies of the dividend policies of U.S. firms, precisely because dividends are taxed at a higher rate than capital gains at the personal level, and due to the asymmetric information environment in the U.S. equity market. When we move our focus to the Hong Kong equity market, however, many unanswered questions remain. Without differential taxation between dividends and capital gains, some models (e.g., John and Williams (1985) and John and Nachman (2000)) can no longer sustain the dividend signaling and smoothing results. This is because the signaling cost in these models, required to make the signaling of insiders' private information credible, is driven by the difference in taxation between dividends and capital gains. Moreover, if concentration of equity ownership or a close monitoring mechanism exists, there will be less asymmetric information between management and major shareholders, which implies less signaling is necessary. Further, if decision making insiders (management) are more likely to be long-term investors in a firm, they will care less about the equity market value in the short run even under asymmetric information between management and public shareholders. This latter effect is important in the Hong Kong setting, since our ownership data show that, in Hong Kong, equity ownership is more concentrated than in the U.S. (see Fig. 1). In particular, banks, corporations, and individual shareholders are more likely to control 5% or more of a firm's equity in Hong Kong. In contrast, equity ownership is more dispersed in the U.S.

In summary, asymmetric information models have the following implications for our comparison of dividend policies between Hong Kong and the U.S. First, the extent of dividend smoothing will be greater in the U.S. compared to Hong Kong. Second, in each country, the greater the extent of ownership of a firm's equity by outside blockholders (and therefore the smaller the extent of asymmetric information between firm insiders and outsiders), the smaller the extent of dividend smoothing by the firm. As we discuss later, we will use this implication to distinguish between ownership and tax effects as the main determinant of the differences in dividend policies of firms in Hong Kong and the U.S. Finally, the signaling effects of dividend changes on stock returns will be less significant in Hong Kong compared to those in the U.S.

In addition to asymmetric information models, agency models (e.g., Easterbrook (1984)) can also help to shed light on the difference in dividend policies between firms in Hong Kong and the U.S. Agency theories focus on the different incentives of managers and outside shareholders and the role of dividends as a disciplining mechanism. By reducing the amount of free cash flow, dividends force managers to submit to the discipline of the financial markets. Similar to asymmetric information (signaling) models, these theories also predict that dividend changes should be positively related to stock returns because a higher dividend level reduces managers' tendency to waste free cash. The level of ownership by blockholders is significantly greater in Hong Kong compared to the U.S., and these blockholders have the ability to monitor firm managers. Hence, we would expect the extent of agency conflicts to be significantly lower in Hong Kong compared to the U.S. This would imply that the effect of dividend changes on stock returns will be greater in the U.S. compared to Hong Kong.

We first study dividend smoothing by firms in the U.S. and in Hong Kong. We form annual aggregate dividends and aggregate earnings by summing up each individual firm's dividends and earnings. We then proceed to test the Lintner dividend model using time series regressions at both the aggregate and firm levels. Our empirical results suggest that dividend payout in Hong Kong, both at the aggregate and at the firm levels, is more closely related to earnings in the same year than in the U.S., and that the speed

2 See the Wall Street Journal 02/09/1996 article: *An "Untested" Flat Tax*, for an interesting review and comment of Hong Kong's economy and tax structure. See also Price Waterhouse (1995a,b).

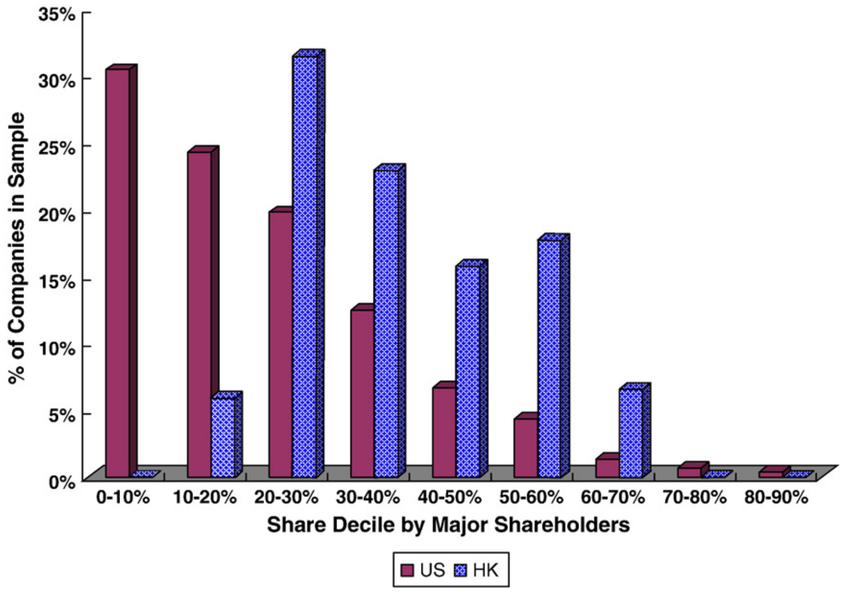

Fig. 1. Concentration of corporate equity ownership for Hong Kong and U.S. Firms. This figure displays the distribution of corporate ownership by major block shareholders (those who control 5% or more of the company's stock) for Hong Kong and U.S. firms. We categorize ownership into 10 share deciles: share decile 1 includes firms whose aggregate percentage of shares held by major shareholders is between 0 and 10%, decile 2 includes firms whose aggregate percentage of shares held by major shareholders is between 10% and 20%, etc. The percentage of companies in a sample (Hong Kong or U.S.) falling into each decile indicates the degree of concentration of corporate ownership.

of adjustment to a long-term target dividend payout ratio is much faster in Hong Kong than in the U.S. In other words, our findings are consistent with the hypothesis that the extent of dividend smoothing is much smaller in Hong Kong than in the U.S.

We then study whether the above difference in dividend smoothing between Hong Kong and U.S. firms is driven by tax effects or ownership effects. In order to distinguish between the above two effects, we divide the firms in each country into those with high ownership by outside blockholders versus those with low ownership, and run time series regressions of the Lintner model separately on these two categories of firms in each country. As discussed earlier, if ownership effects are driving the above differences, one would expect firms with high ownership by blockholders (and therefore facing a smaller extent of asymmetric information in the equity market) to engage in a smaller extent of dividend smoothing. Contrary to the above expectation, we find no significant differences in dividend smoothing between firms with greater blockholder equity ownership and those with smaller ownership, thus suggesting that the above differences in dividend smoothing between Hong Kong and the U.S. are not driven by differences in equity ownership across the two countries.

We then separate the universe of dividend changing firms into those increasing dividends versus those cutting dividends, as well as into those initiating dividends versus those omitting dividends. We analyze the different effects that dividend changes in each country have on the dividend changing firms' stock returns around their dividend change announcement dates. The results of our empirical analysis indicate that the announcement effects of all four types of dividend changes are less pronounced in Hong Kong relative to those in the U.S. Overall, our results show that the signaling effects of dividend changes are weaker in the Hong Kong equity market relative to those in the U.S.

Finally, we make use of logit regressions to study the factors driving dividend change decisions in Hong Kong and in the U.S. The explanatory variables we use are lagged firm fundamentals and market-adjusted excess stock returns. As expected, the most significant determinant of both dividend decreases as well as increases in both countries is the lagged dividend yield. In both countries, a firm with a high dividend yield is more likely to cut dividends in the following year than a firm with a low dividend yield. On the other hand, a firm with a high dividend yield is less likely to increase it relative to one with a low dividend yield. Another interesting finding from our logit analysis is that dividend cuts are likely to be preceded by stock return underperformance and dividend increases by stock return outperformance in the U.S., but not in Hong Kong.

What do our results tell us about the difference in the dividend policies of firms in Hong Kong and the U.S., and the implications of these differences for various theories of dividend policies? First, firms engage in dividend smoothing to a much smaller extent in Hong Kong compared to the U.S. Second, the equity market reacts to a significantly smaller extent to changes in firms' dividend policies in Hong Kong compared to the U.S. Third, the differences in dividend smoothing between Hong Kong and the U.S. are consistent with the signaling implications of the differences in the tax regime across the two countries. Overall, the above results provide significant support to asymmetric information models of dividend policy, though the second result above is consistent with the implications of agency models as well.

The rest of the paper is organized as follows. Section 2 discusses related existing literature. Section 3 develops testable hypotheses. Section 4 describes the data. Section 5 investigates the Lintner and other related dividend models for the two economies. Section 6 distinguishes between tax and ownership effects on dividend smoothing behavior in Hong Kong and in the U.S. Section 7 studies the relationship between dividend changes and equity performance. Section 8 examines the fundamental factors influencing dividend changes in Hong Kong and the U.S. using a logit analysis. Section 9 concludes.

2. Relation to the existing literature

Our paper is related to two strands in the empirical corporate finance literature. The first literature is on corporate dividend policy. In his pioneering study of how U.S. firms choose their dividend payments, Lintner (1956) concludes that firms tend to smooth dividends relative to earnings: they are reluctant to raise dividends unless they are confident that higher dividend levels can be sustained permanently by earnings, and firms are reluctant to cut dividends even when earnings decline. Lintner conjectured that firms have target dividend payout ratios and gradually adjust their dividends commensurate with earnings toward their target ratios. Later empirical studies of dividend policy in the U.S focused on the information content of dividend changes. For instance, Aharony and Swary (1980) found that equity prices on average move corresponding to the direction of dividend changes in the two day period around the dividend announcement day. Charest (1978) finds sluggish market reaction to dividend changes in that dividend increasing stocks earn positive excess returns and dividend cutting stocks earn negative excess returns in the months after the announcement date.[3]

The second literature related to our paper is the one on multinational comparisons of corporate financial policies, with a view to understanding more about the factors driving these policies.[4] In this spirit, Dewenter and Warther (1998) compare the dividend polices of U.S and Japanese firms, partitioning the Japanese data into kieretsu, independent, and hybrid firms. However, unlike our paper, their primary focus is not on the dynamic aspects of corporate dividend policy.[5] There is also a literature which studies the information content of dividend changes by Hong Kong firms (see, e.g., Cheng et al. (2007)) and the relationship between ownership concentration and dividend policy in Hong Kong (see, e.g., Chen et al. (2005)), which, however, does not address the issues we study here.[6]

Our objective in the current paper is not to enter into the debate regarding why firms pay dividends in the first place, but rather to focus on those firms that already pay dividends and compare the dynamics of their dividend policies in Hong Kong versus the U.S. and the implications of these policies for stock returns. A recent paper by DeAngelo et al. (2004) documents that less than half of U.S. firms pay dividends, and that much of the dividends paid are by large, profitable firms; Denis and Osobov (2008) provide similar evidence for several developed financial markets (the U.S., Canada, the United Kingdom, Germany, France, and Japan). The above papers suggest that this is evidence against signaling theories of dividends, since they argue that it is the smaller firms in each economy that are likely to be more severely affected by asymmetric information and therefore more in need of signaling compared to larger firms. However, the above argument is incomplete, since it focuses only on the benefits of signaling but not on the costs of signaling. While it is indeed the case that the benefits of signaling are greater for smaller firms, the costs of signaling are also likely to be greater for such firms: since smaller firms are likely to be more financially constrained (partly due to asymmetric information) and have much greater growth opportunities, they are likely to have a higher opportunity cost of funds that need to be paid as dividends for the purpose of signaling. In other words, even under signaling theories, smaller firms may find it optimal not to signal using dividends while larger firms do so. It should be noted that our results do not contradict those of the above papers; our view is that, as in the case of other corporate events, there may be multiple motivations driving the dividend policies of firms.

3. Development of testable hypotheses

As we argued in the Introduction, the tax structure in the U.S. motivates firms to engage in dividend smoothing to a larger extent than in Hong Kong. Further, given that the ownership structure in Hong Kong is significantly more concentrated than in the U.S., we would expect the extent of asymmetric information between firm insiders and outsiders to be greater in the U.S. compared to that in Hong Kong. Therefore, models such as John and Nachman (2000) imply that the need for dividend smoothing will be greater in the U.S. compared to Hong Kong. This yields the first hypothesis we test in this paper:

H1. *The adjustment of dividends to current earnings is faster in Hong Kong compared to that in the U.S.*

As discussed earlier, the tax structure in Hong Kong, which taxes dividends and capital gains at the same rate, is less conducive to dividend signaling compared to that existing in the U.S. (during the sample period of our study). Further, given the higher

[3] There is also a large literature analyzing the relationship between dividend changes and omissions to prior and subsequent operating performance, as well as to the information content of dividend changes (see, e.g., Watts (1973), Aharony and Swary (1980), Asquith and Mullins (1983), Healy and Palepu (1988), and DeAngelo et al. (1992)). The literature dealing with the effect of tax policy on the dividend payment behavior of U.S. firms (see, e.g., Chetty and Saez (2005)) is also related to our paper. See also a recent unpublished working paper by Michaely and Roberts (2007), who compare the dividend policies of publicly- and privately-held firms.

[4] See, e.g., Kang and Stulz (1996), Kato and Loewenstein (1995), or Rajan and Zingales (1995).

[5] Another paper which studies the dividend policies of firms in Hong Kong is Frank and Jagannathan (1998), who, however, focus on why the fall in share price for each dollar of dividend paid is, on average, less than one dollar. They explain this phenomenon theoretically and empirically through microstructure arguments. Also, Ip and Ho (1989) examine dividend payout of six selected leading companies in major industries in Hong Kong. They find that half of the companies set a constant dividend payout ratio over the time period considered.

[6] While the former paper focuses on the simultaneous announcements of earnings and dividends, the latter paper focuses on the relationship between family ownership and dividend policy (and finds no significant relationship). Neither paper addresses dividend smoothing in Hong Kong; nor do they attempt to develop insights into corporate dividend policies by comparing firms' dividend policies in Hong Kong and the U.S.

proportion of equity held by blockholders in Hong Kong relative to that in the U.S., and given that equity holders with significant ownership in the firm (i.e., blockholders) have the resources to engage in information production about the firm and thus reduce the information asymmetry they face relative to firm insiders, the extent of asymmetric information facing firms in Hong Kong is likely to be lower than that in the U.S. Either of the above two effects may lead to greater dividend smoothing by U.S. firms compared to Hong Kong firms. We can distinguish between the above two effects by comparing the extent of dividend smoothing across firms having different equity ownership by blockholders in each country (i.e., keeping the tax structure constant). This leads to the following testable hypothesis:

H2. *If ownership differences are the primary driver of the difference in dividend smoothing behavior between Hong Kong and U.S. firms, then firms with a higher level of equity ownership by blockholders in each country will systematically engage in a smaller extent of dividend smoothing than firms with a lower level of blockholder equity ownership do.*

Given that theoretical models such as John and Williams (1985) predict that the tax structure in the U.S. is more conducive to signaling insiders' private information compared to that in Hong Kong, and given that the extent of asymmetric information between firm insiders and outsiders is likely to be higher in the U.S. compared to Hong Kong, we would expect the signaling effects of a dividend change on stock returns to be greater in the U.S. compared to that in Hong Kong. This yields the following testable hypothesis:

H3. *The magnitude of the announcement effects of firms' dividend initiations and omissions, as well as those of firms' dividend increases and decreases, on their stock returns will be greater in the U.S. compared to that in Hong Kong.*[7]

4. Data

Our primary data source is the Global Vantage database provided by Standard and Poor's. This is an international equity database which contains firm accounting information in the Industrial/Commercial File or the Financial Service File, and monthly equity price and dividend information in the Issue File for various countries. By calculating the cumulative adjustment factors in the Issue File, we construct monthly equity returns and dividend per share information. We exclude financial service companies (SIC codes 6000 to 6999) and utilities (SIC codes 4900 to 4949) from our sample. Our Hong Kong sample, covering the period from 1984 to 2002, consists of all industrial and commercial companies that are both listed on the Stock Exchange of Hong Kong and use HKD as the currency.[8] Similarly, we proceed to form the sample of U.S. industrial and commercial firms from the Global Vantage database. To facilitate a meaningful comparison between the U.S. and Hong Kong samples, we perform an industry matching of U. S. firms with Hong Kong firms: a U.S. company is included in our sample only if its Standard Industry Classification (SIC) code matches one of the SIC codes in the Hong Kong firm sample. We select all industry-matched and U.S.-incorporated firms which are listed on the New York Stock Exchange, American Stock Exchange, or NASDAQ National Market.

Table 1 gives the summary statistics of variables used in our study. These variables, which represent various fundamental characteristics of these firms, are from the Global Vantage database, and are collected by combining data items in the Industrial/ Commercial File and the Issue File. Dividend payout ratio is obtained via dividing a firm's dividends by its earnings available for common stockholders (net income net of preferred dividends). It gives a measure of the distribution of earnings to investors and the retention of earnings for reinvestment for an industrial and commercial firm. Dividend yield is defined as the dividend per share over the closing stock price at fiscal year end. PE is price-earnings ratio at fiscal year end. Size is the logarithm of a firm's market capitalization at fiscal year end. ROA is the return on assets at fiscal year end. D/E ratio is the ratio of long-term debt and firm market value of equity at fiscal year end. Excess return (EW) is a firm's stock return in excess of an equally-weighted market index for the fiscal year. Excess return (VW) is a firm's stock return in excess of a value-weighted market index for the fiscal year. Market proxy is an equally-weighted or value-weighted index of all Hong Kong or U.S. industrial/commercial firms with available return data in the Global Vantage database. Market/Book is a firm's equity market value over common equity book value at fiscal year end. These variables are summarized across all firm-years. As we can see, while most of the variables are approximately similar for Hong Kong and the U.S., firms in the U.S. generally have higher PE ratio, Market/Book, ROA, and leverage. Moreover, firms in Hong Kong tend to have a higher yet less volatile dividend payout ratio (with mean 0.58 and standard deviation 1.67) than firms in the U.S. (with mean 0.21 and standard deviation 7.81), suggesting that industrial and commercial companies in Hong Kong follow a dividend policy closer to a constant dividend payout ratio compared to firms in the U.S.[9]

We also collect the ownership data for a subsample of the firms in the two countries. Our ownership data for Hong Kong firms is from the database constructed by Claessens et al. (2000), which contains the number and percentage of shares held by the five largest blockholders (each of whom holds more than 5% of the total shares) for 2980 firms in nine East Asian countries for the year 1996. We extract the data for Hong Kong from their database, and add up the percentage of voting shares owned by these five

[7] As discussed in the Introduction, this testable implication is also generated by agency models.

[8] We chose not to extend our sample period beyond the year 2002 since the U.S. had a major tax reform in 2003, which substantially reduces the difference between the taxes on capital gains and dividends in the U.S., thus making the tax regimes in the two countries more or less similar to each other. Further, given that our equity ownership snapshot was taken in the year 1996, we did not want to go too many years beyond that year.

[9] The differences in the mean and standard deviation of the dividend payout ratios in the two countries are also statistically significant. A two-sample t-test shows that the difference in the mean dividend payout ratios between the two countries has a test statistic of 1.74 (with a p-value of 0.08) and a two-sample F-test for the equality of the variance of dividend payout ratios in the two countries has a test statistic of 33.00 (with a p-value of <0.001).

Table 1
Summary statistics.

	N	Mean	Std	25th percentile	Median	75th percentile
Hong Kong						
DivPayout	2182	0.58	1.67	0.24	0.43	0.66
DivYld	2895	0.03	0.08	0.00	0.01	0.05
PE	2838	15.96	120.69	−0.73	6.80	13.20
Size	2872	13.32	1.58	12.19	13.19	14.25
ROA	2943	0.01	0.45	−0.01	0.05	0.12
D/E ratio	2871	0.36	3.08	0.00	0.05	0.25
Excess return (EW)	2528	−0.05	1.27	−0.42	−0.15	0.14
Excess return (VW)	2528	0.10	1.34	−0.38	−0.12	0.19
Market/book	2871	2.79	43.11	0.46	0.86	1.76
U.S.						
DivPayout	13,812	0.21	7.81	0.00	0.00	0.21
DivYld	13,352	0.02	0.39	0.00	0.00	0.01
PE	13,250	17.70	178.58	−0.97	13.08	22.59
Size	13,244	12.76	2.11	11.35	12.77	14.08
ROA	13,796	0.08	0.61	0.06	0.12	0.18
D/E ratio	13,210	1.08	9.78	0.01	0.18	0.58
Excess return (EW)	12,356	−0.07	3.41	−0.56	−0.22	0.10
Excess return (VW)	12,356	0.12	3.41	−0.38	−0.09	0.25
Market/book	13,056	3.87	88.13	1.03	1.84	3.25

This table reports the summary statistics of variables used in our study. For the Hong Kong sample, we include all industrial or commercial firms in the Global Vantage Industrial/Commercial File from 1984 to 2002. The firms are all listed on the Hong Kong Stock Exchange with HKD as currency. For the U.S. sample, we include all industrial or commercial firms that match the SIC codes of the companies in the Hong Kong sample. The firms are listed on the New York Stock Exchange (NYSE), American Stock Exchange (AMEX), or NASDAQ National Market, and are incorporated in the United States. The definitions of various variables are as follows. DivPayout, the dividend payout ratio, is the ratio of a firm's annual dividends to its annual earnings available for common stockholders (net income net of preferred dividends). DivYld is dividend per share over the closing stock price at fiscal year end. PE is price-earnings ratio at fiscal year end. Size is the logarithm of the firm's market capitalization at fiscal year end. ROA is the return on assets at fiscal year end. D/E ratio is the ratio of long-term debt and firm market value of equity at fiscal year end. Excess return (EW) is the firm's stock return in excess of an equally-weighted market index for the fiscal year. Excess return (VW) is the firm's stock return in excess of a value-weighted market index for the fiscal year. Market proxy is an equally-weighted or value-weighted index of all Hong Kong or U.S. industrial/commercial firms with available return data in the Global Vantage database. Market/book is the firm's equity market value over common equity book value at fiscal year end. The variables are summarized across all firm-years.

blockholders to proxy for how tightly a firm is controlled by its major shareholders. Our ownership data for U.S. firms is from the dataset provided by Dlugosz et al. (2006), which gives the percentage of shares held by all blockholders for U.S. firms from 1996 to 2001.[10] However, since we have Hong Kong equity ownership data available only for the 1996 fiscal year, we extract only the 1996 ownership data from the Dlugosz et al. dataset for industry-matched U.S. firms in our sample.[11]

Table 2 summarizes the ownership data for our sample. We define a major shareholder (blockholder) of a firm as one who controls at least 5% of the firm's stock. The aggregate percentage of shares held by all major shareholders of a firm indicates the level of corporate ownership concentration: a small number implies diverse stock ownership, while a large number implies a high degree of concentration of stock ownership. We report major stock ownership in each percentage of shares decile for Hong Kong and U.S. firms: share decile 1 represents an (aggregate) ownership between 0 and 10% held by major shareholders, and share decile 10 represents an ownership between 90% and 100% held by major shareholders. As we can see, the mean level of ownership by major shareholders in Hong Kong is 36.8% and the median is 35%, whereas in the U.S., an average (median) firm has 20.8% (18.1%) of shares held by its major shareholders, which is much lower than that in Hong Kong. Moreover, stock ownership is more dispersed in the U.S. than in Hong Kong. For example, 30.35% of the U.S. companies in the sample have major shareholders holding less than 10% of the company stock, while none of Hong Kong companies are in the same situation. There is a larger proportion of Hong Kong companies with ownership by major shareholders between 20% and 60%.

This higher degree of concentration of equity ownership in Hong Kong relative to the U.S. is depicted in Fig. 1. Since major shareholders are likely to have direct access to top management and also have the resources to produce more precise

[10] Our data source is such that we only have the largest five blockholders for Hong Kong firms, but all blockholders for U.S. firms. Although we recognize this limitation of our data, this does not bias our results. This is because we only use the ownership data to distinguish between a tax effect and an ownership effect on firms' dividend smoothing behavior in each country separately. In other words, when we attempt to distinguish between ownership and tax effects, we compare the difference in dividend smoothing behavior between high-ownership and low-ownership firms within each country. Since the definition of ownership level is fixed for each country, this will not affect our comparisons of firms with different ownership levels within each country. In terms of comparing ownership levels across Hong Kong and the U.S., we use our equity ownership data only to make the statement that equity ownership by blockholders is greater in Hong Kong compared to that in the U.S. This finding will also not be affected by the different availability of blockholder ownership data across the two countries, since the fact that we have only the five largest blockholders in Hong Kong but all blockholders in the U.S. will only create a downward bias in the equity ownership we report for Hong Kong firms.

[11] Since equity ownership does not change dramatically from year to year, it is reasonable to assume the equity ownership in 1996 is fairly representative of our sample period.

Table 2
Corporate equity ownership for Hong Kong and U.S. firms.

Concentration of corporate equity ownership				
Share decile held by major shareholders	Hong Kong		United States	
	Number of firms	% of firms	Number of firms	% of firms
0–10%	0	0.00%	183	30.35%
10–20%	9	5.88%	146	24.21%
20–30%	48	31.37%	119	19.73%
30–40%	35	22.88%	75	12.44%
40–50%	24	15.69%	40	6.63%
50–60%	27	17.65%	26	4.31%
60–70%	10	6.54%	8	1.33%
70–80%	0	0.00%	4	0.66%
80–90%	0	0.00%	2	0.33%
90–100%	0	0.00%	0	0.00%
Total	153	100.00%	603	100.00%
Mean ownership	36.8%		20.8%	
Median ownership	35.0%		18.1%	

This table reports the concentration of corporate equity ownership for Hong Kong and U.S. firms. The ownership data for Hong Kong firms, from the database constructed by Claessens et al. (2000), is a snapshot for the 1996 fiscal year. Ownership data in 1996 for U.S. firms is from the dataset provided by Dlugosz et al. (2006). We define a major shareholder of a firm as one who controls at least 5% of the firm's stock. The aggregate percentage of shares held by all major shareholders of a firm indicates the level of corporate ownership concentration: a small number implies diverse stock ownership, while a large number implies a high degree of concentration of stock ownership. We report major stock ownership in each percentage of shares decile for Hong Kong and U.S. firm samples: share decile 1 represents an (aggregate) ownership between 0 and 10% held by major shareholders, and share decile 10 represents an ownership between 90% and 100% held by major shareholders.

information about the firm, the extent of asymmetric information between management and major shareholders will be significantly less on average when stockholding is more concentrated. Therefore, the data we present here implies that the extent of asymmetric information between insiders and outsiders is significantly less in Hong Kong compared to that in the U.S. As a result, dividends may be a less important tool in conveying private information about a firm's future prospects from firm insiders to outsiders in Hong Kong relative to its role in the U.S. Further, even when dividends are employed by firm insiders as a signal to convey their private information to outsiders, the signaling effect of a dividend change on a firm's stock price (and its stock returns) will be lower when the extent of asymmetric information facing the firm is lower, implying that the announcement effect of a dividend change on its stock returns will be smaller in Hong Kong compared to that in the U.S. (as discussed under H3).

To test H3, we gathered dividend announcement and payment information as well as daily stock prices for U.S. and Hong Kong firms. We gathered this data for U.S. industrial firms from CRSP and for Hong Kong industrial firms from PACAP. We focus on dividend change (initiating, omitting, increasing, and decreasing) announcements during 1984 to 2003. We define our sample of dividend initiating and omitting firms by following a procedure adopted in Michaely et al. (1995). To construct the sample of dividend initiating firms, we identify the first cash dividend payment of a firm and then require that its stock must have been traded on either the NYSE/AMEX (for U.S. stocks) or the Hong Kong Stock Exchange (for Hong Kong stocks) for 2 years prior to the initiation of the first cash dividend payout.[12] The resulting dividend initiating sample includes 567 U.S. events and 127 Hong Kong events. Unlike initiations, declarations of dividend omissions are not directly recorded on the CRSP or PACAP tapes. To construct the sample of dividend omitting firms, we first identify the set of potential omission events by selecting companies that had existed on the NYSE/AMEX (for U.S. stocks) or the Hong Kong Stock Exchange (for Hong Kong stocks) for more than 1 year and had paid regular, periodic cash dividends and then omitted such payments. For quarterly dividend payers, we require that they had declared at least six consecutive cash payments and then made no payments in the next calendar quarter; for semi-annual dividend payers, we require that they had declared at least three consecutive cash payments and then made no payments in the next 6 months; for annual dividend payers, we require that they had declared at least two consecutive cash payments and then made no payments in the next year. Last, we manually search for news articles for the possible omission events in Factiva to find exact dates for the omission announcement dates and exclude those involving concurrent earnings announcements. The final dividend omitting sample includes 779 U.S. events and 150 Hong Kong events. Following the definition used in Dhillon and Johnson (1994), we define our sample of dividend increasing and decreasing firms by requiring that the change in dividend payment amounts to be greater than 30%.[13] This leaves us with 241 dividend increase events and 906 dividend cut events for Hong Kong stocks, and 133 dividend increase events and 345 dividend cut events for U.S. stocks.

[12] See Michaely et al. (1995) for a detailed justification of this requirement.
[13] Thus, we follow the event study literature in using a stricter definition for dividend changes (a minimum change of 30%) in our event study analysis than that we use in our frequency test and logit analysis (where dividend change is defined as a 10% change or higher). Using a broader definition of dividend change in our event study analysis will not qualitatively change our results, though the results will be somewhat weaker.

5. Dividend smoothing patterns

In this section, we compare the extent of dividend smoothing in Hong Kong versus that in the U.S. and test our first hypothesis (H1) that the adjustment of dividends to current earnings is faster in Hong Kong compared to that in the U.S.

5.1. Frequency of dividend changing events

We begin with a characterization of how frequently Hong Kong and U.S. firms adjust their annual dividend levels. Table 3 reports the frequency of dividend changes for our sample of Hong Kong and U.S. firms from 1984 to 2002. Panel A reports the frequency of changes across Cuts (a larger than 10% fall in annual dividends), Increases (a larger than 10% increase in annual dividends), and Continuations (no change or changes smaller than 10% in annual dividends).[14] To avoid overstating the incidence of dividend cuts (increases), we follow Dewenter and Warther (1998) to count only the initial cuts (increases) when there are a series of cuts (increases) in consecutive years. The results do not change materially if we include all dividends cuts and increases in these categories. We find that U.S. firms are far more reluctant to adopt dividend changes than Hong Kong firms through cuts and increases: 38.34% of Hong Kong firms in our sample increase their annual dividend levels more than 10% from the previous year while this fraction is 18.09% in the U.S. Similarly, 33.22% of Hong Kong firms cut their dividends more than 10% from the previous year whereas only 8.22% of U.S. firms do so. A chi-square test of independence rejects equal distribution at the 1% level when comparing Hong Kong and U.S. firms. Clearly, U.S. firms are more reluctant to change their dividends than Hong Kong firms.

Panel B of Table 3 shows the frequency of changes across Initiations (moving from zero to a positive level of annual dividends), Omissions (moving from positive to zero annual dividends), and Other (all other annual dividend changes). As we can see, 11.89% of the Hong Kong sample are dividend initiations while only 3.01% of the U.S. sample go through the same dividend changes. Similarly, 9.37% of Hong Kong firms and 3.81% of U.S. firms omit their annual dividends. Again, the result from a chi-square test of independence rejects the null that the data come from the same distribution at the 1% level for the Hong Kong sample versus the U.S. sample. In sum, Hong Kong firms seem to be more willing to change their dividend levels through initiations, omissions, cuts, and increases.

5.2. The Lintner model

Another measure of managerial willingness to change dividends is the speed of adjustment (SOA) parameter from the Lintner model. Lintner (1956) proposed a simple theoretical model of corporate dividend policy after an extensive field study of U.S. companies. He concludes that most companies tend to have a long-term target dividend payout ratio but the actual dividend payments deviate from the target, and a dividend smoothing effect exists. Companies tend to raise dividend payout to its long-term target level only after the management is confident that the new dividend amount is sustainable thereafter; and companies tend not to cut or stop dividends when they only experience temporary reductions in earnings or cash flows. His model is given by:

$$D = a + bP + cD_{-1} + u,$$

where D is dividend payment of the current year, D_{-1} is dividend payment of the previous year, P is earnings (net income) of the current year, and u is a random disturbance. Lintner reports highly significant regression coefficients when using aggregate dividend and earnings data in the period 1918–1951. The speed of adjustment parameter is estimated by the previous literature using the following variant of the above model:

$$\Delta D = a + c(rP - D_{-1}) + u,$$

where ΔD is the change in dividends in the current year versus the previous year, D_{-1} is the dividend payment during the previous year, P is earnings (net income) during the current year, r is the unknown target payout ratio, a is a constant, u is a random disturbance, and c is the speed of adjustment parameter.

We investigate the same phenomena using Hong Kong and U.S. equity data in the time period 1984–2002. From the Global Vantage Industrial/Commercial File, we collect Hong Kong and industry-matched U.S. firms with non-missing fiscal year data in common dividends (data item 36), net income (data item 32) and preferred dividends (data item 35). Earnings available for common stockholders is calculated as net income net of preferred dividends. We test the original Lintner model and several variants of the above model both on an aggregate level and on a firm level. The regression models we use are as follows:

$$\text{Model 1}: D = a + bP + cD_{-1}$$

$$\text{Model 2}: D = a + bP + cP_{-1}$$

[14] We use the cut-off value of 10% to filter out immaterial changes in dividends and imprecision in the data. However, our empirical results are not sensitive to this restriction. We have tried the cut-off values of 0%, 5%, and 20%, and all give us broadly similar results.

Table 3
Frequency distribution of dividend changes in Hong Kong and U.S.

	Total obs	Increases	Continuations	Cuts
Panel A: dividend increases and cuts				
Hong Kong	918	352	261	305
	100%	38.34%	28.43%	33.22%
U.S.	3721	673	2742	306
	100%	18.09%	73.69%	8.22%
Total	4639	1025	3003	611
	100%	22.10%	64.73%	13.17%
Chi-square tests of independence	719.19			
(p-Value)	(0.00)			
Panel B: dividend initiations and omissions				
Hong Kong	1590	189	1252	149
	100%	11.89%	78.74%	9.37%
U.S.	4955	149	4617	189
	100%	3.01%	93.18%	3.81%
Total	6545	338	5869	338
	100%	5.16%	89.67%	5.16%
Chi-square tests of independence	283.74			
(p-Value)	(0.00)			

This table reports the frequency of dividend changes for our sample of Hong Kong and U.S. firms from 1984 to 2002. Panel A reports the frequency of changes across Cuts (a larger than 10% fall in annual dividends), Increases (a larger than 10% increase in annual dividends), and Continuations (no change or changes smaller than 10% in annual dividends). Panel B shows the frequency of changes across Initiations (moving from zero to a positive level of annual dividends), Omissions (moving from positive to zero annual dividends), and Other (all other annual dividend changes). Percentages indicate the frequency with which observations for a given country fall into the category. The Chi-square test of independence examines whether the distribution of dividend changes is independent of the country effect.

$$\text{Model 3}: D = a + bP$$

$$\text{Model 4}: \Delta D = a + b\Delta P$$

$$\text{Model 5}: D = a + bP_{-1} + cD_{-1}$$

$$\text{Model 6}: \Delta D = a + bP + cD_{-1}$$

where D is the dividend paid during the current year, P is the earnings (net income net of preferred dividends) during the current year, D_{-1} is the dividend paid during the previous year, P_{-1} is the earnings during the previous year, ΔD is the change in dividend payout during the current year versus the previous year, and ΔP is the change in earnings for the current year versus the previous year. Model 2 is a revised version of the Lintner model adopted in Darling (1957) under the assumption that past dividends are highly correlated with past earnings. Thus, model 2 tests how dividend payment is related to current and past earnings. Model 3 investigates if current earnings alone can explain the dividend payment. In model 4, we hypothesize that only changes in earnings cause changes in dividends. Model 5 tests whether past earnings or past dividend levels matter more for current year dividend payouts. Model 6 tests the significance as well as the magnitude of the speed of adjustment parameter (SOA $= -c$).

Table 4 reports the regression results of Lintner models for Hong Kong and U.S. industrial and commercial firms on an aggregate level. We run time series regressions on each of the above six models by first summing together individual firm data to arrive at an aggregate level of dividend payouts and earnings. Panel A gives results for Hong Kong firms while panel B examines U.S. firms. Comparing the results for model 1 for both countries, we can see that the coefficient for current year earnings is highly significant at the 1% level (t-statistic $= 3.11$) in explaining dividend payout in Hong Kong, but only marginally significant at the 10% level in the U.S. (t-statistic $= 1.76$). The magnitude of the coefficient for current year earnings is also larger in Hong Kong than in the U.S. Moreover, although in both countries, past dividend levels positively and significantly affect current year dividend payouts, showing a certain degree of dividend smoothing, the coefficient of past dividends is much bigger in the U.S. than in Hong Kong (0.927 compared to 0.657) and also more statistically significant (with a t-statistic of 9.29 compared to 6.30). The goodness of fit for both economies is high with adjusted R-squares in the high eighties. The Durbin–Watson tests for autocorrelation of the least squares residuals show that we cannot reject the hypothesis that there is no autocorrelation in our model 1 regression for both U.S. and Hong Kong firms.

We now turn to the results of our test of other variants of the original Lintner model. These tests show that for Hong Kong firms, whenever current year earnings is present in the model, the coefficient before this variable is highly significant at the 1% level, while the same is not true for U.S. firms (at best the current year earnings is marginally significant at the 10% level for the U.S.). Model 4 also presents interesting results: in Hong Kong, the change in earnings can explain a significant proportion of the change in dividends with adjusted R-squares of 53%, while in the U.S., the change in earnings has almost no explanatory power for the change in dividends (with adjusted R-squares below 15%). Model 6 shows that the speed of adjustment (SOA) parameter is 0.343 in Hong Kong using aggregate data whereas SOA in the U.S. is small and not significantly different from zero.

Table 4
Aggregate regression results of the Lintner model and variants.

Dependent variables	(1)	(2)	(3)	(4)	(5)	(6)
	D	D	D	ΔD	D	ΔD
Panel A: Hong Kong						
D_{-1}	0.657***				1.120***	−0.343***
	(6.30)				(6.62)	(−3.28)
P	0.145***	0.239***	0.300***			0.145***
	(3.11)	(5.86)	(3.88)			(3.11)
P_{-1}		0.154*			−0.136***	
		(1.87)			(−7.85)	
ΔP				0.117**		
				(2.57)		
Constant	3.127**	7.051*	10.072**	1.658	4.636*	3.127**
(Millions)	(2.20)	(1.98)	(2.71)	(1.72)	(2.06)	(2.20)
Adj R-squared	0.861	0.644	0.534	0.529	0.797	0.455
Durbin–Watson	1.559	1.037	0.923	1.766	2.492	1.559
Panel B: United States						
D_{-1}	0.927***				0.941***	−0.073
	(9.29)				(9.66)	(−0.73)
P	0.071*	0.058	0.112			0.071*
	(1.76)	(0.69)	(0.97)			(1.76)
P_{-1}		0.133			0.012	
		(0.90)			(0.56)	
ΔP				0.056		
				(1.42)		
Constant	1.285	24.841*	29.009**	3.133	4.208	1.285
(Millions)	(0.38)	(1.98)	(2.84)	(1.33)	(0.88)	(0.38)
Observations	18	18	19	18	18	18
Adj R-squared	0.835	0.153	0.069	0.134	0.781	0.155
Durbin–Watson	1.693	0.409	0.238	1.627	1.632	1.693

This table reports the aggregate regression results of the Lintner model and variations of this model to test dividend smoothing and payout policy in Hong Kong and the United States. The aggregate time series regression models used are as follows:

$$\begin{aligned}
&\text{Model 1}: D = a + bP + cD_{-1}\\
&\text{Model 2}: D = a + bP + cP_{-1}\\
&\text{Model 3}: D = a + bP\\
&\text{Model 4}: \Delta D = a + b\Delta P\\
&\text{Model 5}: D = a + bP_{-1} + cD_{-1}\\
&\text{Model 6}: \Delta D = a + bP + cD_{-1}
\end{aligned}$$

where D is the dividend paid during the current year, P is the earnings (net income net of preferred dividends) during the current year, D_{-1} is the dividend paid during the previous year, P_{-1} is the earnings during the previous year, ΔD is the change in dividend payout during the current year versus the previous year, and ΔP is the change in earnings for the current year versus the previous year. All data items are from the Global Vantage Industrial/Commercial File. Heteroscedasticity-robust T-statistics are in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels respectively.

Table 5 reports our firm level regression results of the Lintner model and variants of the above model to test dividend smoothing in Hong Kong and the United States.[15] To eliminate possible bias due to lack of data, we require at least 7 years of nonzero dividend and earnings data for a firm to be included in this analysis. Restricting the sample to firms with 5 or 10 years of data does not change the results. The average (mean) model coefficients, average t-statistics, and average adjusted R-squares from regression models carried out on a firm level are reported in Panel A and B for Hong Kong and the U.S., respectively. As we can see, the results are qualitatively similar to the aggregate level results reported in the last table. In particular, model 1 continues to show that past dividend seems to be more important in driving the current dividend level for U.S. firms than for Hong Kong firms, and that current year earnings significantly affects current year dividend payouts in Hong Kong but not in the U.S. Although on a firm level basis, the SOA parameter from model 6 is also significant for U.S. firms, its average value is only 0.279, which is less than half of the SOA for an average Hong Kong firm (0.684).

[15] To address the concern that our sample spans the years of the Asia financial crisis in 1997 and 1998, we have repeated the firm level regressions of the Lintner model by excluding the sample period from 1997 to 1998 (and separately, by excluding all years after 1997), and have obtained qualitatively very similar results.

Table 5
Firm level regression results of the Lintner model and variants.

Dependent variables	(1)	(2)	(3)	(4)	(5)	(6)
	D	D	D	ΔD	D	ΔD
Panel A: Hong Kong						
D_{-1}	0.284**				0.357**	−0.684***
	(2.26)				(1.98)	(−10.07)
P	0.248***	0.261***	0.264***			0.248***
	(3.34)	(3.18)	(4.458)			(3.34)
P_{-1}		0.036			0.062	
		(0.842)			(0.25)	
ΔP				0.185***		
				(2.79)		
Constant	30964.4	45758.6**	72241.7**	14875.1	83878.8	30964.4
	(0.86)	(2.06)	(2.26)	(0.223)	(1.04)	(0.86)
Num of firms	156	156	156	156	156	156
Adj R-squared	0.503	0.386	0.388	0.223	0.299	0.485
Panel B: United States						
D_{-1}	0.368***				0.328***	−0.279***
	(5.92)				(5.581)	(−30.7)
P	0.035	0.026	0.058**			0.035*
	(1.36)	(0.71)	(2.11)			(1.36)
P_{-1}		0.054			0.047	
		(1.13)			(1.02)	
ΔP				0.032		
				(0.459)		
Constant	11740.5	31925.3***	35088.4***	1914.1	16115.3*	11740.5
	(0.96)	(5.50)	(5.02)	(0.96)	(1.38)	(0.96)
Num of firms	618	618	618	618	618	618
Adj R-squared	0.572	0.285	0.198	0.031	0.566	0.337

Panel C: Comparison of speed of adjustment (SOA) between Hong Kong and the United States

	Mean	Median	Std. deviation	Num of firms
Hong Kong	0.684	0.678	0.440	156
United States	0.279	0.058	0.961	618
Difference	0.405***	0.620***		
Tests of difference	(7.75)	(104.34)		
(p-Values)	(0.000)	(0.000)		

This table reports the firm level regression results of the Lintner model and variations of this model to test dividend smoothing and payout policy in Hong Kong and the United States. We require at least seven years of nonzero dividend and earnings data for a firm to be included in this analysis. The firm level regression models are respectively:

$$\text{Model 1}: D = a + bP + cD_{-1}$$
$$\text{Model 2}: D = a + bP + cP_{-1}$$
$$\text{Model 3}: D = a + bP$$
$$\text{Model 4}: \Delta D = a + b\Delta P$$
$$\text{Model 5}: D = a + bP_{-1} + cD_{-1}$$
$$\text{Model 6}: \Delta D = a + bP + cD_{-1}$$

where D is the dividend paid during the current year, P is the earnings (net income net of preferred dividends) during the current year, D_{-1} is the dividend paid during the previous year, P_{-1} is the earnings during the previous year, ΔD is the change in dividend payout during the current year versus the previous year, and ΔP is the change in earnings for the current year versus the previous year. All data items are from the Global Vantage Industrial/Commercial File. The average (mean) model coefficients, average t-statistics, and average adjusted R-squares from regression models carried out on a firm level are reported in Panel A and B for Hong Kong and U.S., respectively. Panel C compares the speed of adjustment (SOA) estimates from Model 6 for Hong Kong and U.S. Both a two-sample t-test for the difference in means and a Wilcoxon rank-sum test for the difference in medians are performed and reported. ***, **, and * indicate significance at the 1, 5, and 10% levels respectively.

Panel C of Table 5 compares the speed of adjustment (SOA) estimates from Model 6 for Hong Kong and U.S. firms using formal statistical tests. A two-sample t-test for the equality of means of SOA for both countries (assuming unequal variances) rejects the null hypothesis at the 1% level. Similarly, a nonparametric chi-square test (K-sample test) for the equality of median SOAs for firms in the two countries also rejects the null at the 1% level.

In summary, both our aggregate and firm level comparisons of dividend policies in Hong Kong and the U.S. suggest that the dividend payout of firms in Hong Kong is more closely related to earnings in the same year than in the U.S., and that the speed of adjustment to a long-term target dividend payout ratio is much faster in Hong Kong than in the U.S. In other words, our findings are consistent with our first hypothesis (H1) that the extent of dividend smoothing is much smaller in Hong Kong than in the U.S.

6. Distinguishing between ownership and tax effects

Next, we use our sample of corporate ownership data to distinguish between a tax effect and an ownership effect on firms' different dividend smoothing behaviors in the two countries. The idea is to compare the extent of dividend smoothing across firms with different equity ownership by blockholders in each country (Hong Kong and the U.S.) while keeping the tax regime constant. This is a test of our second hypothesis (H2). Since corporate ownership usually experiences little variation over time, we assume that our snapshot of the ownership data in 1996 holds constant over the years for both countries.

We first split each country's sample into two groups, each with a different ownership level: "above median" refers to the set of firms whose equity ownership by outside blockholders exceeds the country median ownership, while "below median" refers to the set of firms whose equity ownership by outside blockholders is smaller than the country median ownership. We then perform a firm level Lintner model analysis as we did in Section 5.2. To construct an estimate of the speed of adjustment (SOA) parameter, we analyze each firm's dividend change decision by using model 6 in Section 5.2. Panel A of Table 6 reports the mean and median SOA for the two groups of firms in each country. As we can see, both groups of firms in Hong Kong have a significantly larger SOA than the corresponding group of firms in the U.S., and the difference is statistically significant at the 1% level for both means and medians, confirming our earlier results that firms in Hong Kong engage in less dividend smoothing than firms in the U.S. Moreover, comparing the two groups of firms with different ownership levels within a given tax regime (i.e., in a given country), we find that the mean SOA parameter for firms with lower blockholder ownership is actually higher than the mean SOA parameter for higher blockholder ownership firms, contrary to our second hypothesis (H2). For example, the mean SOA parameter for Hong Kong firms in the "above median" ownership group is 0.696, whereas the mean SOA parameter for Hong Kong firms in the "below median" ownership group is 0.722. The same relationship is also found if we look at the mean SOA parameters for U.S. firms with different ownership levels. However, the difference in the mean SOA parameters for the two ownership groups in both countries is not statistically significant, even at the 10% level. Similarly, if we look at the median SOA parameters across the two groups of firms with different ownership levels, we can see that although the "above median" group has a slightly higher median SOA than the "below median" group for both countries, the difference is again insignificant, failing to support our second hypothesis.

Table 6
Firm level results of the Lintner model for different levels of ownership.

Ownership level	Hong Kong (HK)		United States (US)		Difference (HK − US)	
	Mean	Median	Mean	Median	Mean	Median
Panel A: firm level speed of adjustment (SOA) estimates for above the median and below the median ownership levels						
Above median	0.696	0.712	0.199	0.209	0.497***	0.503***
Below median	0.722	0.678	0.301	0.148	0.421***	0.530***
Difference	−0.026	0.034	−0.102	0.061		
Tests of difference	(−0.29)	(0.03)	(−0.92)	(0.58)		
(*p*-Values)	(0.77)	(0.98)	(0.36)	(0.56)		
Panel B: firm level speed of adjustment (SOA) estimates for the top and bottom tercile ownership levels						
Top tercile	0.765	0.712	0.160	0.209	0.605***	0.503***
Middle tercile	0.713	0.716	0.329	0.223	0.384***	0.493***
Bottom tercile	0.671	0.598	0.259	0.135	0.412***	0.463***
Difference (top−bottom)	0.094	0.114	−0.099	0.074		
Tests of difference	(0.90)	(0.98)	(−0.70)	(0.72)		
(*p*-Values)	(0.37)	(0.33)	(0.49)	(0.47)		

This table reports the firm level regression results of a variant of the Lintner model for different levels of ownership firms in Hong Kong and the United States. We analyze the multivariate regression model as in Model 6 of Table 5: $\Delta D = a + \mathrm{bP} + \mathrm{cD}_{-1,}$ where P is a firm's earnings (net of preferred dividends) of the current year, D_{-1} is its dividend payment of the previous year, and ΔD is the change in its dividends of current year versus previous year. We require at least seven years of nonzero dividend and earnings data for a firm to be included in this analysis. The ownership data for Hong Kong firms, from the database constructed by Claessens et al. (2000), is a snapshot for the 1996 fiscal year. Ownership data in 1996 for U.S. firms is from the dataset provided by Dlugosz et al. (2006). We define a major shareholder of a firm as one who controls at least 5% of the firm's stock. The aggregate percentage of shares held by all major shareholders of a firm indicates the level of corporate ownership concentration: a small number implies diverse stock ownership, while a large number implies a high degree of concentration of stock ownership. In Panel A, we divide each country's firms into an above-the-median and a below-the-median group based on the level of their aggregate percentage of shares held by major shareholders, and compare the mean and median speed of adjustment (SOA) estimates for these two categories of firms in Hong Kong versus in the U.S. Both a two-sample t-test for the difference in means and a Wilcoxon rank-sum test for the difference in medians are performed and reported. In Panel B, we conduct a similar analysis by dividing each country's firms into three equal terciles based on their ownership levels. ***, **, and * indicate significance at the 1, 5, and 10% levels respectively.

To verify whether or not our results are driven by firms in the middle of the ownership distribution, Panel B of Table 6 repeats the above analysis by dividing each country's firms into three equal terciles based on their ownership levels and compares the mean and median SOA parameters for these groups of firms. As we can see, the results are broadly similar to those in Panel A. At each ownership level, Hong Kong firms have a significantly larger average SOA than U.S. firms. However, within each country, firms with top tercile ownership levels do not have SOAs significantly different from firms with bottom tercile ownership levels.

In summary, our evidence in this section contradicts our second hypothesis (H2) that in both Hong Kong and the U.S., firms with a higher level of ownership by blockholders will engage in a smaller extent of dividend smoothing. This indicates that the differences between the dividend policies of firms in the two countries are consistent with the signaling implications of the differences in the tax regime across the two countries.

7. Dividend change events and equity performance

We next study the relationship between dividend change events and equity performance, and test our third hypothesis (H3) that the announcement effect of a firm's dividend change on its stock returns will be greater in the U.S. compared to that in Hong Kong. Cash dividend per share and stock return (including reinvested dividends) information is obtained from CRSP (for U.S. stocks) and PACAP (for Hong Kong stocks), and is adjusted for stock splits and stock dividends. As in Table 3, we analyze four categories of dividend changes: increases, cuts, initiations, and omissions. However, the definitions of these four dividend change events, given in detail in Section 4, are different from what we used for Table 3, which analyzed dividend changes at the annual level. The Hong Kong sample with non-missing stock return data consists of 241 dividend increases, 906 dividend cuts, 127 dividend initiations, and 150 dividend omissions. The U.S. sample consists of 133 dividend increases, 345 dividend cuts, 567 dividend initiations, and 779 dividend omissions.

7.1. Stock returns

To measure equity performance, we calculate the buy-and-hold returns following Ritter (1991) and Loughran and Ritter (1995) in their study of the long-run performance of IPOs. All returns include reinvested dividends. We construct the buy-and-hold raw returns for each stock for either a wide window (covering 30 days before the announcement to the announcement day) or a narrow window (covering 1 day before the announcement to the announcement day) during which a dividend change occurs. This raw return is adjusted by a market benchmark index return (described below in Section 7.2) for the same time period. Assuming day 0 is the dividend change date, the raw buy-and-hold return for a stock from day −T to day 0 is then calculated by compounding the $T+1$ daily returns:

$$R_{iT} = \prod_{t=-T}^{0} (1 + r_{it}) - 1,$$

where r_{it} is the daily return for stock i on day t.

7.2. Market-adjusted excess returns

The market indices we use, representing equity benchmark performance of dividend changing firms in Hong Kong, are the equally-weighted and the value (market capital) weighted stock index of all Hong Kong stocks from the PACAP database. Similarly, for the U.S., we use the equally-weighted and the value-weighted stock indices of all U.S. stocks traded on NYSE, NASDAQ, or AMEX, from the CRSP database. The index return serves as a market return proxy in adjusting raw stock returns. The market-adjusted excess return for stock i from day $-T$ to day 0 is:

$$ER_{iT} = \prod_{t=-T}^{0} (1 + r_{it}) - \prod_{t=-T}^{0} (1 + r_{ht}),$$

where r_{ht} is the daily return of an (equally-weighted or value-weighted) equity index and ER_{iT} is the buy-and-hold market-adjusted excess return of stock i from day $-T$ to day 0.

The equity performance in a group of N dividend changing events is measured by the mean market-adjusted excess return:

$$ER_T = \frac{1}{N}\sum_{i=1}^{N} ER_{iT}.$$

Similar to Dewenter and Warther (1998), we examine the mean (as well as median) excess returns for dividend changing stocks during both a wide window (from day −30 to day 0) and a narrow window (from day −1 to day 0) around the dividend changing announcement dates. We compare the different announcement excess returns for dividend changing firms in Hong Kong and the U.S.

Table 7
Market-adjusted excess returns around dividend increase and dividend cut announcements.

	Relative to EW Index			Relative to VW Index		
	Hong Kong	U.S.	Test of diff	Hong Kong	U.S.	Test of diff
Panel A: buy-and-hold market-adjusted excess returns for dividend increases						
N	241	133		241	133	
Narrow window						
Mean	0.008***	0.014***	−1.66*	0.008***	0.015***	−1.80*
(Std error of mean)	0.003	0.003		0.003	0.003	
Median	0.000	0.009	2.26**	0.001	0.009	2.36**
Wide window						
Mean	0.019**	0.046***	−1.88*	0.044***	0.071***	−1.78*
(Std error of mean)	0.009	0.011		0.009	0.012	
Median	0.012	0.027	1.78*	0.024	0.050	2.06**
Panel B: buy-and-hold market-adjusted excess returns for dividend cuts						
N	906	345		906	345	
Narrow window						
Mean	−0.002**	−0.005**	1.84*	−0.003**	−0.004**	1.36
(Std error of mean)	0.001	0.002		0.001	0.002	
Median	−0.002	−0.003	0.48	−0.003	−0.003	0.22
Wide window						
Mean	−0.018***	−0.031***	1.66*	−0.002	−0.007	0.79
(Std error of mean)	0.004	0.007		0.004	0.007	
Median	−0.017	−0.024	1.42	−0.012	−0.006	0.18

This table reports the event study results regarding the market-adjusted excess returns around dividend increases and cuts announcements for non-financial and non-utility firms in Hong Kong and the U.S. between 1984 and 2003. Mean and median buy-and-hold returns during both a wide window (covering 30 days before the announcement to the announcement day) and a narrow window (covering 1 day before the announcement to the announcement day) are adjusted by the return on either an equally-weighted (EW) or a value (market capital) weighted (VW) stock index of all Hong Kong stocks in PACAP or U.S. stocks in CRSP (traded on NYSE, NASDAQ, or AMEX). Test for difference in means is a two-tailed *t*-test. Test for difference in medians is a Wilcoxon rank-sum test. Panel A gives results for increases, and panel B gives results for cuts. ***, **, and * indicate significance at the 1, 5, and 10% levels respectively.

7.3. Equity performance

For each firm that changes its dividend on a given date, we calculate its buy-and-hold market-adjusted excess return around the announcement date. We first compare dividend increasing stocks and dividend cutting stocks in Hong Kong and in the United States. Panel A of Table 7 shows that the mean buy-and-hold market-adjusted excess returns for a dividend increasing stock in both countries are significantly positive, whether we use an equally-weighted market index or a value-weighted index, and whether we look at a narrow window (from day −1 to day 0) or a wide window (from day −30 to day 0). In the meantime, the positive mean excess announcement return is significantly higher in the United States than in Hong Kong, and the magnitude of the difference is large (almost twice in the U.S. than in Hong Kong). For example, if we look at the narrow window EW Index results, the mean excess return for dividend increases of U.S. firms is 0.014 while that of Hong Kong firms is 0.008. The difference between the two countries is even stronger when we examine the median (rather than mean) buy-and-hold market-adjusted excess returns for dividend increasing stocks in both countries: U.S stocks react far more positively for the dividend increasing announcements than Hong Kong stocks do (e.g., 0.009 versus 0.000 for the narrow window EW Index results).

Panel B of Table 7 shows that mean buy-and-hold market-adjusted excess returns for a dividend cutting stock in both countries are significantly negative if we examine a narrow window around the announcement dates, whether we use an equally-weighted market index or a value-weighted index. When we examine a wide window, the mean excess returns are significantly negative if we use an equally-weighted market index, but insignificantly negative if we use a value-weighted index. As in Panel A, the negative excess stock returns in response to dividend cutting news is much stronger in the United States than in Hong Kong (e.g., −0.005 versus −0.002 for the narrow window mean announcement returns adjusted by an EW Index), though the difference, while statistically significant, is smaller than in the case of dividend increases.

Table 8 compares the excess announcement returns for dividend initiating stocks (in Panel A) and dividend omitting stocks (in Panel B) in the two countries. Overall, the mean buy-and-hold market-adjusted excess return for a dividend initiating stock is significantly positive in both countries, whether we use an equally-weighted market index or a value-weighted index, and whether we look at a narrow window or a wide window. Moreover, the positive mean excess announcement return is significantly higher in the United States than in Hong Kong if we examine the narrow window return, and the magnitude of the difference is large (almost twice in the U.S. than in Hong Kong). For example, if we look at the EW Index results, the mean excess return for dividend initiations of U.S. firms is 0.017 while that of Hong Kong firms is only 0.008. But this difference is smaller when we use the wide window return. Similar results can be found if we examine the median (rather than mean) buy-and-hold market-adjusted excess return for dividend initiating stocks in both countries: U.S. stocks react more positively for the dividend initiating announcements than Hong Kong stocks do.

Table 8
Market-adjusted excess returns around dividend initiation and omission announcements.

	Relative to EW Index			Relative to VW Index		
	Hong Kong	U.S.	Test of diff	Hong Kong	U.S.	Test of diff
Panel A: buy-and-hold market-adjusted excess returns for dividend initiations						
N	127	567		127	567	
Narrow window						
Mean	0.008**	0.017***	−1.68*	0.007	0.018***	−1.86*
(Std error of mean)	0.004	0.002		0.005	0.002	
Median	0.001	0.008	1.85*	0.005	0.008	1.80*
Wide window						
Mean	0.039***	0.043***	−0.23	0.055***	0.064***	−0.54
(Std error of mean)	0.015	0.007		0.015	0.007	
Median	0.031	0.021	0.08	0.021	0.045	0.58
Panel B: buy-and-hold market-adjusted excess returns for dividend omissions						
N	150	779		150	779	
Narrow window						
Mean	−0.004	−0.015***	1.43	0.002	−0.012***	1.78*
(Std error of mean)	0.007	0.003		0.007	0.003	
Median	−0.009	−0.013	1.15	−0.006	−0.013	1.79*
Wide window						
Mean	−0.052***	−0.085***	1.83*	−0.023	−0.066***	2.39**
(Std error of mean)	0.018	0.007		0.019	0.007	
Median	−0.066	−0.090	1.79*	−0.037	−0.071	2.28**

This table reports the event study results regarding the market-adjusted excess returns around dividend initiation and omission announcements for non-financial and non-utility firms in Hong Kong and the U.S. between 1984 and 2003. Mean and median buy-and-hold returns during both a wide window (covering 30 days before the announcement to the announcement day) and a narrow window (covering 1 day before the announcement to the announcement day) are adjusted by the return on either an equally-weighted (EW) or a value (market capital) weighted (VW) stock index of all Hong Kong stocks in PACAP or U.S. stocks in CRSP (traded on NYSE, NASDAQ, or AMEX). Test for difference in means is a two-tailed *t*-test. Test for difference in medians is a Wilcoxon rank-sum test. Panel A gives results for initiations, and panel B gives results for omissions. ***, **, and * indicate significance at the 1, 5, and 10% levels respectively.

Panel B of Table 8 shows that the mean buy-and-hold market-adjusted excess return for a dividend omitting stock in the United States is significantly negative, whether we use an equally-weighted market index or a value-weighted index, and whether we look at a narrow window or a wide window. By contrast, the mean buy-and-hold market-adjusted excess return for a dividend omitting stock in Hong Kong is only weakly negative (or even slightly positive). In addition, the difference between the mean excess announcement returns in the two countries is significantly large (e.g., −0.015 versus −0.004 for the narrow window EW Index results). This result still holds when we examine the median (rather than mean) buy-and-hold market-adjusted excess returns for dividend omitting stocks in both countries: U.S. stocks react far more negatively for dividend omitting announcements than Hong Kong stocks do.

Overall, the above event study analysis of the equity performance of dividend changing firms provides evidence that dividend events have a bigger impact on stock returns in the U.S. than in Hong Kong, supporting our third hypothesis (H3). In this sense, we can say that the signaling effect of dividend changes is weaker in the Hong Kong equity market than in the U.S equity market.

8. Logit analysis of dividend cuts and increases

In this section, we develop additional evidence on the relationship between the decision to change a firm's dividend and various fundamental characteristics of dividend changing firms. Since a dividend cut (or increase) is a discrete event, we employ a binary logit regression model to investigate the driving factors behind the dividend cut (or increase) decision. The explanatory variables we use in our logit analysis represent various fundamental characteristics of a firm. The data source for our explanatory variables is the Global Vantage database, and is collected by combining data items in the Industrial/Commercial File and the Issue File. As stated in Section 5.1, a dividend cut (increase) represents a dividend per share reduction (increase) of more than 10% from the previous year dividend per share level.

The null hypothesis is that the above variables do not affect a firm's dividend cut (increase) decision. We adopt logit regression variables broadly similar to those in McDonald and Soderstrom (1986) and Dewenter and Warther (1998). To make sure that all of the information on the right hand side of the logit estimates was available to firm insiders when they made their dividend decisions, we only use lagged explanatory variables, which were measured at the fiscal year end at least 1 year prior to the dividend change fiscal year. Since we know from our event study in Section 7 that the announcement dates and the implementation dates of the dividend increasing and decreasing stocks are close (with the gap between these two dates being smaller than 70 days for 75% of U.S. stocks and 99% of Hong Kong stocks in our sample), we can be quite confident that we do not include the information available after the firms made their dividend change decisions (especially in light of the fact that

Table 9
Logit model for dividend cuts and increases.

	Hong Kong		U.S.	
	(1)	(2)	(1)	(2)
Panel A: dividend cuts				
Lagged DivYld	27.86***	31.81***	31.00***	43.93***
	(9.63)[5.48]	(7.93)[5.95]	(9.23)[3.27]	(8.44)[5.03]
Lagged PE	0.01	0.02**	−0.00	0.00
	(1.12)[0.00]	(2.59)[0.00]	(−0.85)[−0.00]	(0.16)[0.00]
Lagged size	0.14**	0.14**	−0.03	−0.01
	(2.49)[0.03]	(1.99)[0.03]	(−0.83)[−0.00]	(−0.15)[−0.00]
Lagged D/E ratio	0.25	0.41	0.05	0.09
	(1.24)[0.05]	(1.57)[0.08]	(1.49)[0.01]	(1.48)[0.01]
1-year lagged excess return	0.21*	0.45***	−0.65***	−0.63***
	(1.78)[0.04]	(2.74)[0.08]	(−3.60)[−0.07]	(−2.66)[−0.07]
2-year Lagged excess return		0.36**		−0.64**
		(1.97)[0.07]		(−2.36)[−0.07]
3-year lagged excess return		0.24		−0.24
		(1.18)[0.04]		(−0.90)[−0.03]
Lagged market/book	0.02	−0.02	0.02**	0.02**
	(0.64)[0.00]	(−0.54)[−0.00]	(2.27)[0.00]	(2.22)[0.00]
Constant	−4.29***	−4.77***	−2.31***	−2.88***
	(−4.96)	(−4.16)	(−4.59)	(−4.18)
Observations	798	512	1658	878
Pseudo *R*-squared	0.18	0.22	0.10	0.19
Prob of div cuts at medians	0.269	0.249	0.120	0.132
Panel B: dividend increases				
Lagged DivYld	−40.24***	−36.97***	−32.18***	−39.27***
	(−10.45)[−9.97]	(−8.29)[−9.00]	(−7.76)[−7.29]	(−7.20)[−9.03]
Lagged PE	−0.00	−0.02*	0.00	0.00
	(−0.99)[−0.00]	(−1.89)[−0.00]	(0.51)[0.00]	(1.62)[0.00]
Lagged size	−0.20***	−0.17**	−0.04	−0.11***
	(−3.54)[−0.05]	(−2.41)[−0.04]	(−1.47)[−0.01]	(−2.77)[−0.03]
Lagged D/E ratio	0.07	0.17	−0.02	−0.08
	(0.29)[0.02]	(0.67)[0.04]	(−0.49)[−0.00]	(−0.75)[−0.02]
1-year lagged excess return	−0.25*	−0.28	0.94***	0.83***
	(−1.71)[−0.06]	(−1.48)[−0.07]	(7.00)[0.21]	(4.73)[0.19]
2-year lagged excess return		−0.07		0.11
		(−0.44)[−0.02]		(0.77)[0.03]
3-year lagged excess return		0.02		−0.02
		(0.07)[0.00]		(−0.10)[−0.00]
Lagged market/book	−0.01	0.03	0.00	−0.03
	(−0.41)[−0.00]	(0.81)[0.01]	(0.24)[0.00]	(−1.59)[−0.01]
Constant	4.44***	3.93***	0.67	1.82***
	(5.19)	(3.59)	(1.58)	(3.16)
Observations	798	512	1658	878
Pseudo *R*-squared	0.21	0.20	0.08	0.11
Prob of div cuts at medians	0.452	0.420	0.347	0.359

This table reports the results from logit models that estimate the probability that an event is a dividend cut or increase. In Panel A, the dependent variable equals 1 if a firm adopts a dividend cut (a larger than 10% fall in annual dividends), and equals 0 if the firm does not cut annual dividends. In Panel B, the dependent variable equals 1 if a firm adopts a dividend increase (a larger than 10% rise in annual dividends), and equals 0 if the firm does not increase annual dividends. Lagged DivYld is dividend per share over the closing stock price at fiscal yearend prior to the dividend change fiscal year. Lagged PE is price-earnings ratio at fiscal yearend prior to the dividend change fiscal year. Lagged size is the logarithm of the firm's market capitalization at fiscal yearend prior to the dividend change fiscal year. Lagged D/E ratio is the ratio of long-term debt and firm market value of equity at fiscal yearend prior to the dividend change fiscal year. 1-year lagged excess return is the firm's annual stock return in excess of an equally-weighted market index 1 year prior to the dividend change fiscal year. 2-year lagged excess return is the firm's annual stock return in excess of an equally-weighted market index 2 years prior to the dividend change fiscal year. 3-year lagged excess return is the firm's annual stock return in excess of an equally-weighted market index 3 years prior to the dividend change fiscal year. Lagged market/book is the firm' equity market value over common equity book value at fiscal yearend prior to the dividend change fiscal year. *Z*-stats for the significance of the coefficients are included in parentheses and marginal effects evaluated at medians of all explanatory variables are reported in brackets. The table also reports the predicted probability of a dividend cut or a dividend increase at the evaluation point when all explanatory variables take the median values. ***, **, and * indicate significance at the 1, 5, and 10% levels respectively.

dividend increases and decreases do not concentrate in the first fiscal quarter of the year like dividend initiations and omissions do).

First, we use the dividend yield at the fiscal year end prior to the dividend change fiscal year. We are interested in finding out whether a firm with a high dividend yield is more likely to increase dividends or to reduce dividends in the following year. Second, we use the price-earnings ratio at the previous fiscal year end. A firm with high (low) price-earnings ratio usually indicates a high (low) growth firm or a firm with temporarily low (high) earnings. We study whether this type of firm is more likely to cut (increase) dividends. Third, we use the logarithm of the equity market capitalization of a firm at the previous fiscal year end. We test whether, all else equal, small firms or large firms are more prone to cut or increase dividends. Fourth, we use the ratio of long-term debt and firm common equity book value at the previous fiscal year end. Firms with relatively high debt levels are more likely to be under cash flow constraints. It is interesting to see if this affects the dividend cut or increase decision. Fifth, we use the market-adjusted excess stock return in the fiscal year prior to the dividend change year. The market proxy is an equally-weighted index of industrial/commercial firms.[16] We are interested in ascertaining how prior stock market performance affects firms' dividend policies. We also use the market-adjusted excess stock returns 2 years and 3 years before the dividend changing year to see how historical stock returns affect firms' dividend changing decisions. Sixth, we use the ratio of firm equity market capitalization to the book value of common shareholder equity of a firm at the previous fiscal year end. This market-to-book ratio captures the growth component of firm value, and we investigate its effect on the dividend cut or increase decision.

Maximum likelihood estimates of the logit model for dividend changes are presented in Table 9.[17] Panel A shows the results with regards to dividend cuts. The first specification of the table (model (1) for each country) shows results when we include only the one-year lagged excess stock returns, while the second specification (model (2) for each country) shows results when we include two more variables, the two-year and three-year lagged excess stock returns. Let us first focus on the first specification of the table for the two countries. The probability of a dividend cut depends on an evaluation point on the cumulative logistic distribution, and is nonlinear with respect to the explanatory variables. When we choose the evaluation point as the median values of all explanatory variables, the probability of a dividend cut is 0.269 for the Hong Kong sample and 0.120 for the U.S. sample. This confirms our earlier result that Hong Kong firms are more likely to adopt dividend cutting policies than U.S. firms. The lagged dividend yield is positively related to the dividend cut decisions for firms in both countries. The higher a firm's lagged dividend yield is, the more likely that the firm will cut its subsequent dividends, and this relationship is both economically and statistically significant. The marginal effect of lagged dividend yield on the probability of dividend cuts, evaluated at median values of all other explanatory variables, is 5.48 for Hong Kong firms, which means that when all other explanatory variables are evaluated at the sample medians, a one percent increase in the lagged dividend yield increases the probability of a dividend cut by 5.48%. The marginal effect of lagged dividend yield on the probability of dividend cuts for U.S. firms is 3.27, which is also big. The lagged market-adjusted excess return is significantly negative in the U.S. (with a Z-statistic of -3.60) and significantly positive in Hong Kong (with a Z-statistic of 1.78). While in the U.S., poor stock performance in a year will result in a dividend cut in the subsequent year, in Hong Kong, this is not necessarily the case. Firm size is significant for Hong Kong firms' dividend cut decisions but not for U.S. firms: larger firms in Hong Kong seem to be more likely to cut dividends than smaller firms. Last, the lagged market-to-book ratio is significant for U.S. firms but not for Hong Kong firms. In the U.S., firms with more growth opportunities (with a higher market to book ratio) are more likely to cut their dividends in subsequent years.

When we include the two-year and three-year lagged excess stock returns in our logit analysis (as in the second specification for each country in Panel A), the results are broadly similar to those in the first specification. The coefficients before both the lagged one-year and lagged two-year excess returns are significantly positive for Hong Kong firms but significantly negative for U.S. firms.

Panel B of Table 9 shows the results with respect to dividend increases. We first discuss the results in the first specification where we include only the one-year lagged excess stock returns. Hong Kong firms have a higher likelihood of a dividend increase (with a probability of 0.452) than U.S. firms (with a probability of 0.347). The lagged dividend yield is still highly significant for firms' dividend increase decisions in both countries: the higher a firm's dividend yield is, the less likely it is to increase its dividends further in the following years. In the first specifications, size matters only for Hong Kong firms' dividend increase decisions, but not for those of U.S. firms. The coefficient before one-year lagged excess stock returns is positive and highly significant in the U.S. but negative and weakly significant in Hong Kong. Also, this variable has a much larger marginal effect on the probability of dividend increase in the U.S. (0.21) than in Hong Kong (-0.06).

When we include the two-year and three-year lagged excess stock returns in our logit analysis (as in the second specification for each country in Panel B), the results are qualitatively similar to those in the first specification. The coefficient for lagged one year excess return is insignificantly negative for Hong Kong firms and significantly positive for U.S. firms. The coefficients for two-year and three-year lagged excess returns are not significant for firms in either country.

In summary, our logit regression results suggest that lagged dividend yields are the most important determinants of firms' dividend change policies in both countries. One important difference between the two countries is that in the U.S., a firm's past stock return performance positively (negatively) affects its subsequent dividend increasing (cutting) decisions, but its impact on dividend changing decisions is reversed in Hong Kong.

9. Conclusion

Starting with Lintner (1956), two important regularities of the dynamics of corporate dividend policy, namely, managerial smoothing of dividends and the reluctance to cut dividends, have been extensively documented in the U.S. However, little is known about the economic forces driving the above empirical regularities. The predictions of various theoretical models of dividend policy depend crucially on the tax and institutional features of the economic setting studied. In this paper, we have developed new insights about the dynamics of corporate dividend policy by performing the natural experiment of comparing

[16] In unreported results, we also used the value-weighted index for a similar analysis and obtained qualitatively similar results.

[17] To address the concern that our sample spans the years of the Asia financial crisis in 1997 and 1998, we have repeated the logit analysis for dividend cuts and increases by excluding the sample period from 1997 to 1998 (and separately, by excluding all years after 1997), and have obtained qualitatively very similar results.

corporate dividend policies in Hong Kong and the U. S., two economies where the tax regime and equity ownership structure are significantly different.

Our empirical results can be summarized as follows. First, a test of the Lintner model reveals that the extent of dividend smoothing by firms in Hong Kong is significantly less than those in the U.S. Second, the signaling effects of dividend changes on stock returns are stronger in the U.S. compared to those in Hong Kong. Third, our logit analysis of the determinants of dividend changes indicates that, while the lagged dividend yield significantly affects dividend changes in both countries in the same fashion, prior year stock returns have opposite effects on dividend changes in the two countries. Finally, the extent of dividend smoothing is not systematically related to blockholder equity ownership in either country. Overall, our results suggest that, compared to U.S. firms, Hong Kong firms pursue a more flexible dividend policy commensurate with earnings, and that the differences between the dividend policies of firms in the two countries are consistent with the signaling implications of the differences in the tax regime across the two countries.

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