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July 2008

First Version: July 2008

Current Version: November 2008

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Abstract:

This study examines whether firms incorporated in mainland China benefit from cross-listing in Hong Kong, China. The Hong Kong Stock Market has more stringent governance rules and a better investor protection than the mainland market. Hong Kong companies generally provide strong incentives to executives via equity-based compensation. Have cross-listed companies learned from Hong Kong local firms in adopting strong executive incentives? The evidence from this study suggests that top executive compensation of cross-listed firms is more sensitive to sales growth than mainland firms without cross-listing. However, compared to that of Hong Kong firms, executive pay of cross-listed firms are less sensitive to stock returns. Further study shows that it is necessary to differentiate state and non-state companies among the cross-listed firms, as they exhibit different patterns of executive incentives.

Key words: Cross-listing   Executive Compensation   Corporate Governance

JEL code: J3, M5

1. Introduction

Cross-listing refers to the case where a firm lists its shares on one or more foreign stock exchanges in addition to the domestic exchange. Cross-listing may be motivated by the opportunity to raise capital from global investors or by the market consideration that cross-listing may help the firm to increase visibility in the foreign market. Recent studies point out another important motivation for cross-listing, the so-called "bonding" explanation. Coffee (1999) was among the first to propose that firms incorporated in a country with a less developed stock market can creditably bond themselves by cross listing their shares in a more developed foreign stock market.

So far, empirical evidence on the "bonding" hypothesis is mostly based on studies of companies listed in the U.S. For examples, Doidge (2004) finds that cross listing is associated with lower private benefit of control; Bauer et al. (2004) find that firms cross-listed in the U.S. have higher corporate governance ratings than firms without a U.S. cross listing; other studies suggest that cross-listing in the U.S. brings advantages such as better valuation, lower cost of capital, more scrutiny by financial analysts, and greater access to external finance (Doidge et al. 2004; Hail and Leuz 2006; Lang et al. 2003, 2006; Reese and Weisbach, 2002).

However, there are also studies challenging the "bonding" hypothesis. Licht (2001, 2003) questioned the effectiveness of the U.S. Securities and Exchange Commission (SEC) in enforcing the U.S.'s more stringent corporate governance rules on foreign firms. In supportive of this view, Siegel (2005) found that the SEC's enforcement on Mexican firms cross-listed in the U.S. was generally weak. Furthermore, Licht (2003) argues that firms may actually go cross listing to avoid strict requirements in domestic markets, consisting of the so-called "avoiding hypothesis".

There are several other countries (e.g., Hong Kong), which boast similar levels of investor protection as the U.S., and also receive an increasing and significant number of cross listings. Hong Kong is the first choice of Chinese companies looking for oversea listing. In the last decade, over 200 Chinese firms have undertaken initial public offerings (IPOs) in the Hong Kong Stock Market, accounting for almost one fourth of all the firms listed in Hong Kong. These companies are either known as "Red Chip" or "H-share". A mainland-China controlled company incorporated and listed in Hong Kong is called a "red chip" company; the word red comes from "red China". Red chips are traded in Hong Kong dollars, and financial statements are also reported in the same currency. H-share companies are incorporated in the mainland and approved by the China Securities Regulatory Commission (CSRC) to list in Hong Kong; the letter H stands for Hong Kong. H-share companies are traded in Hong Kong dollars, but financial statements are reported in RMB Yuan. Recently, the distinctions between H-shares and red chips have become blurred. Many mainland-incorporated companies are issued as red chips, such as China Mobile, China Insurance and China National Offshore Oil Corp (CNOOC). Thus, similar to many other studies, this paper treats H-share and red chip as one group.

Although Hong Kong has returned to China since 1997, Hong Kong's economic and political system in general and, security markets, in particular, remain independent from the mainland. Hong Kong Security and Future Commission (SFC) is the regulatory body in charge of listed companies in the Hong Kong Stock Exchange. In mainland China, there are two stock exchanges in Shanghai and Shenzhen respectively. Companies listed in these two stock exchanges may offer "A shares" to domestic investors and "B shares" to foreign investors. The two stock exchanges and listed companies are regulated by the CSRC.

The Company Law of China, enacted in 1994 and latest amended in 2006, established general corporate governance rules for listed companies. The Company Law is further supplemented by the specific rules issued by the CSRC. The policies and rules in the mainland are generally viewed as more immature and fragmented than those in Hong Kong (World Bank, 2002). An example lies in the specification of independent directors and executive compensation committee on the board. The CSRC requires that only one third of directors be independent, and that independent directors take up their responsibility seriously in important company matters such as executive appointment and compensation, auditing and information disclosure.[1] In comparison, the Hong Kong SFC has detailed regulations, which require not only majority of directors be non-executive and independent, but also the most important board committees such as the auditing and executive remuneration committees have to comprise all non-executives directors. [2]

Empirical studies find that only a small fraction of A-share companies have established the executive compensation committee on the board, and the effectiveness of the committee is questionable; for those without the committee, the situation is worse and executives often set their own salary (Firth et al., 2006b); HK companies, on the other hand, has generally introduced the executive remuneration committee, and the committee is composed of non-executive directors or experts from the outside, and is often more independent than the board in general (Ho, 2003). Some researchers have suggested that the problem of executives of A-share companies colluding with large state shareholders in expropriating minority investors is quite serious (Jian and Wong, 2004; Jiang et al., 2005); others have also questioned the quality of financial disclosure and independency of external auditing of A-share companies (Bao and Chow, 1999;

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[1] CSRC "Advice on Establishing the Independent Director System in Listed Companies", 2001[102]
[2] SFC, http://www.sfc.hk/sfc/html/EN/aboutsfc/corporate/governance/governance.html

DeFond et al., 2000; Wang et al., 2005). Overall, after examining creditor right, investor right, the rule of law, and corruption, Allen et al. (2005) deem that Hong Kong is among the countries with the best investor protection such as the U.S., U.K., Japan, Singapore, and Germany, whereas mainland China, ranked similar to Mexico and Indonesia, was considered to have a poorer investor protection. Similarly, CLSA (2002) ranks Hong Kong number two in the annual Asian corporate governance ranking, and mainland China number sixteen.

Since Hong Kong appears to have more stringent governance rules and a better investor protection than mainland China, executive pay of Hong Kong firms is often more sensitive to company performance than that of mainland companies. The question is whether cross-listed companies have learned from Hong Kong local firms in linking executive pay to performance. The stronger executive incentives adopted by cross-listed companies may be the result of the improvement after the cross-listing, or simply due to the "selection effect", i.e. only those companies that have better conditions are allowed to get listed in Hong Kong. We cannot disentangle these two effects. Our focus is to test whether the overall effect of cross-listing on executive incentives is positive. The feature of our study is that we set two benchmarks for Chinese companies cross-listed in Hong Kong: one is mainland A-share companies; the other is Hong Kong local companies. The comparison of these three groups reveals whether cross-listed companies have caught up with Hong Kong companies or still lag behind, and also whether cross-listed companies have shown improvement over mainland companies.

Our study is most closely related to Ke et al. (2008) who compared mainland companies cross-listed in Hong Kong to those without a HK cross-listing in terms of the sensitivity of executive compensation to firm performance. However, there are several important differences between this paper and Ke et al. (2008). First, our study includes an additional comparison between cross-listed companies and Hong Kong local

companies. Second, and more importantly, Ke et al. (2008) limit the executive compensation analysis to 2003, while we manage to obtain the executive compensation data for mainland, cross-listed, and Hong Kong companies for years 2004-2006. Thus, we are able to estimate the change regressions, whereas, with one year data, Ke et al. (2008) estimated only the level regression. The advantage of the change regression lies in the control of unobserved firm-specific characteristics. The omission of these variables in the level regression causes bias in the estimates. In the change regression, the unobserved firm-specific characteristics drop out after first differencing. Third, before 2004, there was no data on individual executive compensation, and hence Ke et al. (2008) used the total compensation of the three or five highest paid executives and directors in a company for year 2003. [3] Using 2004-2006 data, we employ the individually disclosed executive compensation in the analysis.

Our work also benefits from previous studies that have investigated extensively the relationship between executive pay and firm performance of A-share companies, such as Firth et al. (2006a, b), Kato and Long (2006), Aivazian et al. (2005), Mengistae and Xu (2004). In methodology, we follow Kaplan (1994) who compared the sensitivity of top executive reward to firm performance of Japanese companies with that of the U.S.

Our findings are mixed. When firm performance is measured by stock returns and sales growth, executive compensation is more sensitive to performance in cross-listed companies than mainland companies without cross-listing. Overall, the difference between cross-listed companies and Hong Kong local companies are insignificant, but it could be due to large standard errors. Simple eyeballing shows that in terms of linking executive pay to firms' sales growth, cross-listed companies have caught up with Hong Kong local companies, but in terms of incentives tied to stock

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[3] For mainland companies, the total compensation of the three highest paid executives was disclosed before 2004, while for Hong Kong companies, that of the five highest paid executive was disclosed.

returns, cross-listed firms still lag behind. The rest of the paper is structured as follows: section 2 describes data, sample selection, and variables; section 3 presents the results and section 4 summarizes and concludes the paper.

2. Data

The dataset used in this study consists of panel data of mainland, cross-listed and HK companies from year 2004 to 2006. For HK-listed companies, before 2005 (fiscal year 2004), executive compensation was broken down into bands of HK$500,000 beginning at HK$1,000,000, and the number of directors whose total remuneration falls into each band was disclosed; after 2005, the exact amount of compensation is required to be disclosed. Since the bandwidth is rather broad, the compensation data of HK executives have a relatively large measurement error before fiscal year 2004. Therefore, we use data from 2004 to the latest available year 2006. For mainland listed companies, the disclosure requirement for executive compensation has been rather consistent over time: the compensation is also reported in intervals, but the width of the interval is relatively small, 10,000 RMB Yuan or less. To keep consistency, we select the data of the same years for mainland- and HK-listed companies. The HK-listed include both HK local companies and cross-listed mainland companies. As the end of December 2004, there were 114 H-share and 88 red chip firms listed in Hong Kong. Thus, the sample of cross-listed companies consists of these 202 companies.

To compare cross-listed companies to mainland and Hong Kong companies, we construct the sample of A-share companies that match with the cross-listed companies in industry and size, and the sample of similarly matched HK local companies. The primary reason we select the industry- and size-matched samples is because industry and size are two most important factors that impact firm performance and executive compensation. The other reason is the data collection burden. Financial, market and

executive compensation figures of mainland firms, disclosed by individual companies in their annual reports, have been coded and put into database by data consulting companies such as GTA, CSMAR, and GTI. Financial and market data of Hong Kong companies are available from Datastream. However, compensation and firm characteristics data of cross-listed and Hong Kong companies have to be hand-picked from company statements. There are over 1000 listed companies in Hong Kong Stock Exchange. Hand-picking data for all the companies for all three years is an enormous job. For this reason, we decide to first limit the sample by industry and size, and then pick the data from company reports for the smaller sample.

Detailed process of matching is as follows: the industry type of cross-listed companies (H-shares and Red chips) is obtained from Datastream. For each of the 202 cross-listed companies, we first select A-share firms of the same industry based on the industry classification code of CSRC, [4] and then we identify the one company that is closest in sales revenue and assets. Sales revenue and assets are used as the indicators of firm size. In this way, we obtain the matched sample that contains 202 mainland companies. The sample of HK local companies is constructed following the similar process as mentioned above. For each of the cross-listed companies, one HK local company that is in the same industry based on the industry code of Datastream and is closest in sales revenue and assets is selected. The final sample contains 202 matched local HK companies. Thus, we have obtained three samples:

Mainland: Mainland firms without HK cross listing. The sample size is 202. We use letter "A" to indicate this sample.

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[4] CSRC has classified industries into 13 categories including agriculture and forestry; mining; manufacturing; utility (water, gas, and electricity manufacturing and supply); construction; transportation and storage; information technology; wholesale and retail; finance and insurance; real estate; social service; media and culture; and integrated (multi-industry).

Cross-listed: Mainland companies traded in Hong Kong, including Red Chips and H-share companies. The sample size is 202; we use "HR" to denote this sample.

Hong Kong: Hong Kong local firms incorporated and traded in Hong Kong Stock Exchange. The sample size is 202. "HK" is used to denote this sample.

Executive compensation and firm characteristics data of mainland companies are obtained from GTA, and those of cross-listed and HK local companies are hand picked from financial statements obtained from the website of Hong Kong Stock Exchange (www.hkex.com.hk). The final dataset contains information on the following variables: *Cash compensation* is the sum of an executive's annual salary and bonus in RMB 10,000 Yuan. Since for mainland companies executive compensation is reported in intervals, the exact compensation figure is replaced by the median of the corresponding interval. To be consistent, we convert the compensation of executives of cross-listed and HK companies to RMB Yuan based on the exchange rate. We take the logarithm of *Cash Compensation* and calculate the difference between year *t* and *t-1*, and name the new variable *Change in cash compensation. Management shareholding* is defined as the total shares held by the top three executives of a company at the end of year *t*, as disclosed in the company's financial statements.

There are several variables to measure firm performance: *Market value of equity* is the total market value of tradable shares at the fiscal year end and the unit is RMB million Yuan; *Stock return* is annual stock return from the first month of fiscal year *t* to the end of the fiscal year, adjusted for dividends; *Sales* is net sales revenue for the fiscal year *t* , also in RMB million Yuan; *Sales growth* is the change in the logarithm of sales from year *t -1* to *t*; *ROA* is net income divided by total asset. To overcome the extreme values, we winsorize sales growth and ROA to the range of [-20, 20]. *Change in ROA* is the change in ROA from year *t-1* to *t*; *Loss* is a dummy variable that equals one if net income in year *t* or *t-1* is negative.

The dataset also contains a few variables that characterize a company's governance structure: *Ownership concentration* is the percentage of shares held by the largest shareholder*; State* is a dummy variable that equals one if the largest shareholder is the state*.* In addition, *Years of listing* refers to the number of years since a firm was listed until December 31, 2007.

Table 1 shows financial performance, executive compensation, and ownership structure of mainland, cross-listed, and HK companies. To avoid extreme values, we use the Wilcoxon signed rank test of differences in median for continuous variables and report Z-values. For dummy variables, Chi-Square frequency tests are used to test the differences, and Chi-square statistics are reported. The top panel shows that executives of HK firms earned the average compensation of 4.8 million RMB Yuan per year during 2004-2006 (the median is 2.5 million Yuan), nearly 15 times that earned by executives of mainland firms (10 times the median). Executives of cross-listed companies received an average cash compensation of 1.8 million Yuan (median = 0.77), which is significantly higher than that earned by mainland executives but lower than that earned by HK executives. However, executives in cross-listed companies received a larger increase in cash compensation during 2004-2006, compared to their counterparts in mainland and HK firms. The average annual increase in compensation is 16 percent for cross-listed companies as opposed to 7 percent for HK and mainland firms.

The top panel also shows that top three executives of HK firms own 42 percent of their firm's stock, while their peers in mainland firms own only 0.01 percent. Executives of cross-listed companies have a slightly higher percentage of shares than those of mainland companies, but a much lower percentage than those of HK firms. From this perspective, financial incentives offered to executives in cross-listed companies are more similar to those in mainland companies than to those of HK firms.

Executives of cross-listed firms are still mostly motivated by short-term cash compensation rather than stock ownership or options.

The middle panel (panel B) of Table 1 shows companies' performance by various measures. The average equity value and sales revenue is much larger for cross-listed companies than for mainland and HK firms. A few large firms among cross-listed companies, such as PetroChina, China Eastern Airlines and Huaneng Power, are leading companies of major industries, which may bias the average value for cross-listed firms. In comparison, the median value of equity and sales of the three groups of companies is more similar, except that HK firms are, on average, a little smaller.

Both cross-listed and HK companies outperform mainland companies in stock returns and ROA. The differences between HK and cross-listed firms in these two performance indices are small and statistically insignificant. Cross-listed companies had an average sales growth of 22 percent (18 percent at the median), which is the largest among the three groups of companies. On the other hand, mainland companies had the lowest percentage of Loss: 22 percent of the companies had a negative net income in the previous two years compared to 23 percent for cross-listed companies and 29 percent for HK companies. The frequency of Loss between mainland and cross-listed companies is not significantly different. For both companies, this frequency is substantially lower than that of HK companies. In summary, the evidence is rather mixed as to which firms have the best performance: HK companies perform the best in stock returns and ROA; cross-listed companies have the strongest sales growth; mainland companies have the lowest percentage of Loss; the three groups do not differ significantly in the change of ROA.

The bottom panel shows other characteristics of firms. An important indicator of a company's governance structure is concentration of shareholding. Table 1 shows that cross-listed companies have the most concentrated shareholding structure, followed by HK companies and then by mainland companies. Overall, the percentage of shares held by the largest shareholder is rather high for all the three groups of companies. The tabulation also shows that for 76 percent of mainland companies, the largest shareholder is the state, while for HK companies, that percentage is zero. Among 202 cross-listed companies, 82 percent is state-controlled. Finally, HK companies in general have been listed longer than mainland and cross-listed companies. Descriptive results, so far, have shown that the executive compensation level of cross-listed companies lies between that of mainland and HK companies. The question remains whether executive compensation of cross-listed companies is more or less tied to firm performance than those of mainland and HK firms.

3. Regression Results

To examine the question, we estimate the following regression:

$$Change\ in\ Cash\ Compensation_{it} = \beta_0 + \beta_1 Performance_{it} + \beta_2 Performance_{it-1} + \beta_3 X_{it} + \varepsilon.$$

We adopt four measures of firm performance: (1) *stock returns*; (2) *sales growth*; (3) *change in ROA*; (4) *Loss*. As can be seen, the measures indicate the change in the performance. In addition, the first variable is an external market performance measure while the rest are internal accounting performance measures. Following Kaplan (1994), we also include one-year lagged value of *stock returns*, *sales growth* and *changes in ROA* to capture any lagged effect of firm performance on executive compensation. Since *Loss* indicates a negative net income in either or both of the previous two years, the lagged value of *Loss* is not necessary. We estimate the model, entering the four

performance measures separately as well as including them all together. X_{it} are other firm characteristics included in the regression as control variables. We also include year dummy variables to control for year fixed effects.

We estimate the above equation for mainland, cross-listed, and HK companies separately and report coefficient estimates of β_1 and β_2 in Table 2. The left-hand side of Table 2 shows the estimates for each performance measure with separate adjusted R^2 reported. The right-hand side reports the estimates when all the performance variables and their lagged values are included. To test whether the estimates differ significantly between the three groups of firms, we also use the joint sample of mainland and cross-listed firms, and the joint sample of mainland and HK firms, and also that of cross-listed and HK firms. For each joint sample, we estimate the regression including the interaction of performance with a group indicator (the other group is left out as the reference group). The estimates of the interaction terms, $Performance_t \times group$ and $Performance_{t-1} \times group$, are tested for significance separately (t-test) and also jointly (F-test). The results are reported in Table 2.

Several important points emerge from Table 2: first, there seems sufficient evidence to suggest that executive compensation of HK firms is more sensitive to stock returns than that of cross-listed and mainland firms. This finding is no surprise since HK top executives tend to hold a much higher percentage of the company's shares than executives of mainland and cross-listed firms. Also, many mainland firms owned by the state have a large block of non-tradable shares that distort market price, and therefore mainland firms tend to place less emphasis on stock price as a performance indicator. It also appears that in terms of executive incentives tied to stock returns, cross-listed companies are more similar to mainland companies than to HK companies. This result

suggests that cross-listing in a more developed and less distorted stock market did not alter executive incentive schemes of mainland companies.

Second, cross-listed firms have exceeded HK companies in the responsiveness of compensation changes with respect to sales growth, and both of them have overtaken mainland companies. Once all performance variables are included in the regression (as shown in the right column of table 2), the increase in executive compensation of HK companies is still significantly related to sales growth, and the difference between mainland companies and firms listed in HK is significant.

Third, the estimates of the sensitivity of executive compensation to the change in ROA are positive and sizeable for all three groups of firms. However, the coefficient for ROA becomes insignificant in the presence of sales growth and Loss dummy for mainland and cross-listed companies. This suggests that the variation in ROA is driven by the correlation of ROA with sales growth and Loss. As a result, the comparison between groups did not produce significant patterns.

Finally, despite being less sensitive to stock returns and sales growth than that of cross-listed and HK firms, executive compensation of mainland firms is more sensitive to Loss. This result may be partially due to the strict rules imposed by the CSRC on profitability. According to regulations of the CSRC, A-share companies incurring losses for two consecutive years will be put under special treatment (ST). The companies with losses for three consecutive years face the risk of delisting.

Since ownership structure may have a strong impact on executive incentives, we also conduct the analysis to control for the effect of ownership type. Descriptive results in Table 1 show that the three groups of companies have a similar level of shareholding concentration. Therefore, our focus is rather on the type of the largest shareholder, specifically whether it is private or the state. For mainland and cross-listed companies,

we estimate separate regressions when the largest shareholder is the state and when it is private. We also test the differences between these two cases. Since HK firms are all private, there is no need for separate regressions for them. The results are reported in Table 3. As can be seen, among mainland companies, executive compensation is more sensitive to changes in ROA in state companies than in non-state companies, whereas in the non-state executive pay is more sensitive to Loss. This result is likely due to the different evaluation and incentive system for executives in state and non-state companies. In many cases the government still evaluates state companies based on their total profits and taxes paid (Tenev et al., 2002). Among cross-listed companies, state and non-state firms are similar in terms of the responsiveness of executive compensation to stock returns, changes in ROA, and Loss, but are different in the response to sales growth; state companies that are cross-listed are more sensitive to sales growth than non-state companies.

In any case, Table 3 suggests the necessity to distinguish state and non-state firms in the analysis. For this reason, we conduct more tests of differences and report the results in Table 4. We compared mainland state firms with cross-listed state firms and HK firms, as well as mainland non-state with cross-listed non-state and HK firms. These results show that, the earlier results in Table 2, suggesting executive compensation of cross-listed companies is very sensitive to sales growth, is actually mostly driven by the behavior of state firms, while executive compensation of mainland companies being sensitive to Loss is mainly because of private firms. Nevertheless, mainland state companies are shown to be particularly responsive to changes in ROA when setting executive compensation.

As a whole, our result is different from Ke et al. (2008) who found that for non-state controlled firms, the pay for performance sensitivity is stronger for cross-listed companies than for mainland companies, while the sensitivity for state controlled firms

is not significantly different from that of mainland counterparts. Our results, on the other hand, indicate that for non-state companies, the difference between cross-listed and mainland companies is insignificant, while for state companies, the differences are significant. There are several possible reasons for the disparity between our results and those of Ke et al. (2008). One lies in the sample year. Ke et al. (2008) used 2003 data only, while we use 2004-2006 data. In both mainland and Hong Kong markets, the corporate governance rules and executive compensation have been changing in the past several years, therefore, it is not surprising to find different results for different years. The other is related to the measurement of compensation. As mentioned before, the exact amount of compensation of HK executives is not available until year 2004. Ke et al. (2008) used the total cash compensation of the five highest paid executives in a company; we use the individual executive compensation. Lastly, we estimate the change regression while Ke et al. (2008) estimate the level regression. The different specifications could also contribute to different results.

4. Summary and Conclusion

In conclusion, we found that mainland companies cross-listed in HK exhibited different patterns of responses of executive compensation to firm performance from mainland firms without cross-listing and also different from HK firms. Executive compensation of cross-listed firms is more sensitive to sales growth than that of mainland firms, while it is less sensitive than HK firms to stock returns. When state and non-state firms are separately examined, it is among cross-listed state firms that executive compensation is responsive to sales growth, whereas among cross-listed private companies the incentives tied to sales growth are not so much different from the companies without cross-listing. Moreover, among mainland companies, we find that

executive compensation is particularly sensitive to the change in ROA in state companies while sensitive to Loss in private companies.

These results point to some evidence supportive of the hypothesis that cross-listing is associated with a stronger linkage between executive compensation and firm performance. The hypothesis is supported when performance is measured by sales growth and only for state companies. Moreover, persistent differences are found between state and non-state companies in terms of which performance measure carries the most weight in determining executive pay, except that neither companies put much weight on stock returns.

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Table 1 Descriptive results

Sample Group	A				HR				HK				Test of differences		
Variables	Mean	Median	STD	N	Mean	Median	STD	N	Mean	Median	STD	N	HR>A	HK>A	HK>HR
A. Compensation															
Cash compensation	33.75	25.06	37.38	590	180.90	77.30	384.35	551	479.31	249.14	745.41	536	16.98***	26.41***	14.16***
Change in cash compensation	0.07	0.06	0.39	387	0.16	0.11	0.51	349	0.07	0.02	0.45	327	2.43***	-1.77*	-3.64***
Management shareholding	0.01	0	0.03	528	10.64	0.07	20.76	554	42.05	47.77	22.86	543	13.61***	20.79***	11.88***
B. Financial Status															
Market value of equity	3923.38	2099.78	6640.20	602	15075.85	1566.02	73976.52	586	9226.57	903.42	27148.77	590	3.65***	8.26***	-2.85***
Stock returns	0.11	-0.05	0.57	605	0.26	0.05	0.83	553	0.31	0.09	0.94	583	3.77***	5.60***	1.59
Sales	3629.84	1554.79	6810.24	596	18297.66	2014.11	74895.80	590	4872.29	1150.83	14338.71	605	2.53***	4.35***	-6.19***
Sales growth	0.09	0.14	1.18	596	0.22	0.18	0.84	589	0.09	0.08	0.77	605	3.01***	2.91***	5.61***
ROA	0.00	0.02	0.16	597	0.03	0.04	0.13	584	0.02	0.04	0.96	601	6.63***	4.83***	1.23
Change in ROA	-0.01	0	0.14	597	0	0	0.50	583	-0.03	0	4.24	601	1.35	-0.58	-1.54
Loss	0.22	0	0.41	597	0.23	0	0.42	584	0.29	0	0.45	601	0.31	8.80***	5.77***
C. Other Characteristics															
Ownership Concentration	49.94	40.70	190.93	528	50.82	52.72	17.90	554	47.24	49.76	18.28	543	8.18***	4.91***	-2.99***
State	0.76	1	0.43	570	0.82	1	0.38	595					7.98***		
Years of listing	11.14	10.63	2.58	202	11.20	10.17	7.96	202	14.31	13.67	7.63	202	-3.61***	5.20***	6.14***

Note: *, **, and *** indicates the significance level at 10, 5, and 1% respectively. For continuous variables, Wilcoxon signed rank test of differences in median is used. For dummy variables, Chi-Square frequency test is used to test the differences.

Table 2 Pay-performance sensitivity for three groups

Independent variables	Individual Performance Variables			Test of differences			All Performance Variables			Test of differences		
	A	HR	HK	A<HR	A<HK	HR<HK	A	HR	HK	A<HR	A<HK	HR<HK
A. Stock return												
Stock return, t	.099***	.091***	.061**		†(-)		0.065**	0.074**	0.061**	†		
	(3.25)	(2.69)	(2.06)				(2.21)	(2.21)	(2.14)			
Stock return, t-1	0.052	0.008	.105***				-0.015	-0.075	0.092***			†
	(0.78)	(0.09)	3.28)				(-0.23)	(-0.80)	(2.90)			
Adj-R^2	.040	.042	.044									
B. Sales growth				†								
Sales growth, t	.017*	.133*	.047	†			0.005	0.174***	0.067*	†		†(-)
	(1.95)	(1.92)	(1.25)				(0.62)	(3.01)	(1.94)			
Sales growth, t-1	.115***	0.071	.101***				0.049	0.142***	0.110***	†		
	(2.90)	(1.31)	(2.81)				(1.27)	(3.14)	(3.50)			
Adj-R^2	.040	.037	.033									
C. Change in ROA												
Change in ROA, t	.484**	.219	.016***		†(-)		0.302	0.218	0.021***			
	(2.23)	(0.76)	(15.13)				(1.34)	(0.84)	(10.36)			
Change in ROA, t-1	.149	.154*	.004***				-0.114	0.107	0.008***			
	(0.46)	(1.69)	(5.18)				(-0.43)	(1.38)	(5.64)			
Adj-R^2	.040	.024	.022									
D. Loss												
Loss, t or t-1	-.177***	-.136***	-.092**	†			-0.141***	-0.100*	-0.052			
	(-3.27)	(-2.60)	(-2.02)				(-2.54)	(-1.67)	(-1.11)			
Adj-R^2	.054	.031	.012				.085	.095	.101			
Observations	382	309	310				382	309	310			

Note: The number in parenthesis is t-value of parameter. *, **, and *** indicates the significance level at 10, 5, and 1% respectively. † indicates the difference between groups is significant at the 10% or lower level; (-) indicates the sign is opposite to the assumed direction.

Table 3 Pay-performance sensitivity of state and non-state, A and HR companies

Independent variables	A						HR					
			Test of difference			Test of difference			Test of difference			Test of difference
	State	Non-state	State>Non-state	State	Non-state	State>Non-state	State	Non-state	State>Non-state	State	Non-state	State>Non-state
A. Stock return												
Stock return, t	0.089***	0.113		0.055*	0.024		0.090**	0.072		0.065	0.038	
	(2.59)	(1.31)		(1.72)	(0.26)		(2.20	(1.48)		(1.61)	(0.56)	
Stock return, t-1	0.101	-0.099		-0.021	-0.217		0.045	-0.094		-0.026)	-0.173	
	(1.27)	(-0.71)		(-0.28)	(-1.37)		(0.51	(-0.59)		(-0.27	(-1.04)	
Adj-R^2	.040	.074					0.053	.041				
B. Sales growth									†			
Sales growth, t	0.051	0.017**		0.056	0.008		0.369***	-0.007	†	0.348***	0.076	†
	(0.54)	(2.34)		(0.66)	(1.45)		(3.65	(-0.05)		(3.31)	(0.46)	
Sales growth, t-1	0.158**	0.073		0.074	0.023		-0.014	0.048		0.039	0.136	
	(1.97)	(1.64)		(1.08)	(0.37)		(-0.33	(0.32)		(0.77)	(0.83)	
Adj-R^2	.038	.089					.091	.023				
C. Change in ROA			†									
Change in ROA, t	1.666**	0.347***	†	1.499**	0.162	†	0.241	-0.034		0.279	0.124	
	(2.38)	(3.03)		(2.23)	(1.29)		(0.74)	(0.05)		(1.10)	(0.14)	
Change in ROA, t-1	1.822***	-0.315	†	1.534**	-0.396*	†	0.144*	0.291		0.076	-0.091	
	(2.60)	(-1.18)		(2.21)	(-1.94)		(1.72	(0.64)		(1.07	(-0.11)	
Adj-R^2	.094	.112					.032	.004				
D. Loss												
Loss, t or t-1	-0.160***	-0.221***		-0.044	-0.257**	†	-0.149***	-0.110		-0.107*	-0.126	
	(-2.12)	(-2.29)		(-0.68)	(-2.12)		(-2.80)	(-0.64)		(-1.89)	(-0.45)	
Adj-R^2	.038	.133		.121	.095		.040	.009		.140	.101	
Observations	275	85		275	85		262	47		262	47	

Note: The number in parenthesis is t-value of parameter. *, **, and *** indicates the significance level at 10, 5, and 1% respectively. † indicates the difference between groups is significant at the 10% or lower level; (-) indicates the sign is opposite to the assumed direction.

Table 4 Tests of difference in pay-performance sensitivity for A, HR, and HK, by State

Independent variables	Individual Performance Variables						All Performance Variables					
	A-state< HR-state	A-state < HK	HR-state <HK	A-non-state< HR-non-state	A-non-state <HK	HR-non-state <HK	A-state< HR-state	A-state < HK	HR-state <HK	A-non-state< HR-non-state	A-non-state <HK	HR-non-state <HK
A. Stock return												
Stock return, t		†					†(-)	†				
Stock return, t-1											†	†
B. Sales growth	†				†							
Sales growth, t	†		†(-)				†		†(-)		†	
Sales growth, t-1			†		†							
C. Change in ROA	†(-)	†(-)										
Change in ROA, t	†(-)	†(-)			†(-)		†(-)	†(-)			†	
Change in ROA, t-1	†(-)	†(-)					†(-)	†(-)			†	
D. Loss												
Loss, t or t-1	†(-)										†	
Observations												

Note: † indicates the difference is significant at the 10% or lower level; (-) indicates the sign is opposite to the assumed direction.