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The Valuation Differential between Class A and B Shares: Country Risk in the Chinese Stock Market

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Abstract

The Chinese stock market has been characterized by a strict segmentation between domestic and foreign investors, with listed companies issuing Class A shares to domestic, and Class B shares to foreign, investors, respectively. Entitled to the same rights and obligations, however, the two classes of shares are traded at significantly different prices. The valuation differential is attributable to the different sets of investment opportunities available to domestic versus foreign investors and their risk tolerance. Foreign investors would require a higher rate of return to adjust for the country-specific risk related to the Chinese stock market. The country risk of China can be decomposed into political risk, exchange rate risk, interest rate risk and market risk. Empirical tests provide strong evidence to support the decomposition model, showing the political risk of China as an important component.

1. Introduction

Started with the establishment of the Shanghai Stock Exchange in 1991 and Shenzhen Stock Exchange in 1992, the Chinese stock market has grown rapidly to be the largest emerging market in the world now. As one of the most significant outcomes of China's economic reform, the development of the Chinese stock market aims to revive the ailing state-owned enterprises by listing them on the stock market to attract capital infusion and stimulate performance improvement through shareholder monitoring with a new governance structure. However, the Chinese government has also made clear its intention to control a majority stake in the largest enterprises. Certain unique features of market regulation and ownership structure have evolved as the state accommodates other

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investor groups. Listed companies in China issue domestic (Class A) shares under three major categories: state shares held by central or local government or solely state-owned enterprises, legal person (institutional) shares held by joint stock companies and non-bank financial institutions, and publicly tradable shares mostly held by individual investors, with a strict segmentation among the three categories of shares.[1] While all the listed companies issue Class A shares denominated in local currency (RMB) to domestic investors; a limited number of them have also issued Class B shares to foreign investors in order to attract international capital to boost the Chinese stock market.[2] Class B shares listed on the Shanghai Stock Exchange are denominated in US dollars and Class B shares listed on the Shenzhen Stock Exchange are denominated in HK dollars.[3] The two classes of shares feature the same voting and dividend rights and obligations except that companies issuing B-shares are required to prepare two sets of financial statements: one set based on Chinese accounting regulations for A-shareholders and the other set following International Accounting Standards (IASs) for B-shareholders. The two classes of shares have been traded at significantly different prices, with a substantial price premium for Class A shares. On average, the P/E ratio for A-shares has been above 70, and that for B-shares below 40. Table 1 shows the sizes of the two market segments.

Previous studies have focused on the accounting differences between Class A and B shares, potentially giving rise to information asymmetry between domestic and foreign investors. Annual reports for domestic shareholders are based on Chinese GAAP, audited by local CPA firms, and published in designated securities journals in China. Companies issuing B-shares restate their financial statements in compliance with IASs for release to foreign shareholders through media in Hong Kong. The B-share financial statements are usually audited by the Big 5 firms. The reported earnings determined under the Chinese GAAP are on average 20–30 percent higher than those reported under IASs, thus causing 15 percent of B-share companies changing from a reported profit to a reported loss (Chen *et al.*, 1999). The earnings and book value based on IASs were found to have greater information content than those based on domestic GAAP in explaining stock prices (Bao and Chow, 1999). But Chakravarty *et al.* (1998) argued that, despite the better earnings quality of the B-share statements, foreign investors are actually exposed to a larger degree of information asymmetry because of language barriers and cultural differences, etc. Nonetheless, all these differences cannot solely explain the valuation differential between Class A and B shares since, since

Table 1. *Statistics on A-share and B-Shares Markets*

	A-share			*B-share*		
Year	*Number of firms*	*Market capital*	*Total turnover*	*Number of firms*	*Market capital*	*Total turnover*
1992	53	50*		18	44*	
1993	183	683	3562*	34	179	105*
1994	227	814	8003	54	155	125
1995	242	791	4319	58	147	78
1996	431	2514	21052	69	353	280
1997	627	4856	30295	76	384	427
1998	727	5550	23418	80	196	127
1999	822	7937	31050	82	276	270
2000	1058	15753	60279	113	563	548

*In RMB100 million yuan.

the underlying firm cash flows are the same for both domestic and foreign shareholders of a given firm. According to the efficient market hypothesis, the required rate of return for any investment is positively related to the risk borne by the investor. This study examines how the country risk of China impacts the discount rates used by domestic versus foreign investors in determining the present value of the expected cash flow.

The Chinese stock market poses a higher risk than seasoned markets in developed countries because of its only partially-reformed institutions, lack of clearly defined property rights, and inadequate legal protection under a transition economy. As a result, foreign investors are likely to require a higher rate of return to compensate for the additional risk. Thus the valuation differential between Class A and B shares can be interpreted as an indicator of the country-specific risk related to the Chinese stock market as perceived by international investors. This risk encompasses the likelihood that investors may incur losses in such an unregulated environment. It would be manifested in an overall differential in the risk premium required with regard to a specific country on the world capital market. The market for Class A shares is segmented from the world market as the Chinese domestic investors lack legitimate access to international arbitrage opportunities because of foreign exchange and investment control; nor is the Class A share market open to international investors. Under such segmented conditions, the equilibrium risk premium required of Class A shares is determined by the supply and demand of the limited number of such stocks in the local market as well as the risk tolerance of Chinese domestic investors. Foreign investors in Class B shares, however,

face different investment choices with the accessibility to an almost unlimited supply of stocks in the world market wherein the Chinese Class B shares comprise only a tiny portion. Consequently, the equilibrium risk premium required on Class B shares by international investors would be driven by their risk preference and the supply and demand in the world capital market as a whole. In addition, Class B shareholders are also exposed to an exchange rate risk because all firm cash flows are denominated in Chinese currency, and Class B shareholders need to convert them into foreign currency, subject to fluctuating exchange rates. Hence, domestic and foreign investors would use different discount rates to discount the same stream of firm cash flow because domestic investors cannot – but foreign investors can – diversify away China's country risk.

This paper develops an estimation model to decompose the country risk of China into effects of political risk, exchange rate risk, interest rate risk and market risk. Empirical tests based on a sample of 40 Shanghai-Stock-Exchange-listed companies issuing both Class A and B shares provide strong evidence to support the decomposition model, revealing the political risk of China as being the most important component. The paper is organized as follows. Section two develops the country risk estimation model. Section three reports and discusses the empirical results, and concluding remarks are contained in section four.

2. The Country Risk of China: An Estimation Model

One can employ a variety of methods to estimate systematic country risk in relation to expected returns in finance. A simple approach is to use the beta of the capital asset pricing model (CAPM) as a proxy for country risk, which appears to have some ability to discriminate between expected returns in developed markets when measured against either a single factor or world portfolio (Erb *et al.*, 1996). Reilly and Akhtar (1995) calibrated the impact of alternative benchmarks on the beta for a sample of stocks from developed markets. However, Harvey's study (1995) of emerging markets found no relation between expected returns and betas measured with respect to the world market portfolio, and documented instead that country variance did a better job of explaining the cross-sectional variances in expected returns. Bekaert and Harvey (1995) tested a model wherein expected returns were influenced by both world and local factors, and proposed a conditional regime-switching methodology to distinguish between developing segmented countries and developing countries that are integrated in the world capital markets. The valuation differential between

Class A and B shares affords a unique opportunity to examine the country risk of China within the context of the Chinese stock market.[4] We can estimate the country risk of China by evaluating and comparing among the different risk factors impacting domestic versus foreign shareholders' investment decisions.

The price of A-shares (P^{A}) is determined by the expected dividend flow (D) to A-share investors:

$$P_t^{A} = \sum_s \frac{E_t(D_{t+s})}{(1 + r^{A})^s} \tag{1}$$

where r^{A} is the required rate of return by domestic investors in A-shares.

The price of B-share (P^{B}) is determined by the expected dividend flow (D) to the B-share investors who, in addition, will take into account both the effect of political and exchange rate risk factors on the expected dividend flow:

$$P_t^{B} = \sum_s \frac{E_t(D_{t+s})E_t(\pi_{t+s})}{(1 + r^{B})^s}\theta_t^* \tag{2}$$

where r^{B} is the rate of return on B-share required by foreign investors, π is the exchange rate, and θ^* is the discount factor for political risk. Strictly speaking, political risk would affect the values of both A-shares and B-shares. However, domestic investors who can only hold A-shares and foreign investors who can only hold B-shares may well have different perceptions towards political risks of China. Therefore, θ^* in fact captures the difference in perceived political risks between domestic and foreign investors.

To make the model tractable, we assume that the expected dividend flow approximately follows a constant growth rate and the expected growth rate is perceived to be the same by investors in both Class A and B shares. Specifically, we have

$$P_t^{A} = \sum_s \frac{E_t(D_{t+s})}{(1 + r^{A})^s} = \frac{E_t(D_{t+1})}{r^{A} - g} \tag{3}$$

for A-share investors. For B-share investors, we assume that the expected future exchange rates exhibit no long-term trend, namely,

$$E_t(\pi_{t+s}) = E_t(\pi_{t+1}), \quad \forall s. \tag{4}$$

We further assume that the expectation of the exchange rate in the next period is adaptive:

$$E_t(\pi_{t+1}) = E_{t-1}(\pi_t) + \alpha_0[\pi_t - E_{t-1}(\pi_t)] \tag{5}$$

Applying the same formula recursively and simplifying yields

$$\begin{aligned} E_t(\pi_{t+1}) &= \alpha_0\pi_t + \alpha_1\pi_{t-1} + \alpha_2\pi_{t-2} + \cdots \\ &= \pi_t[\alpha_0 + \alpha_1\frac{\pi_{t-1}}{\pi_t} + \alpha_2\frac{\pi_{t-2}}{\pi_t} + \cdots] \end{aligned} \tag{6}$$

where

$$\alpha_i = \alpha_0(1-\alpha_0)^i, \quad \forall i.$$

Defining

$$\frac{\pi_{t-1}}{\pi_t} = \frac{\pi_t - (\pi_t - \pi_{t-1})}{\pi_t} = 1 - \frac{\Delta\pi_1}{\pi_t}, \quad \frac{\pi_{t-2}}{\pi_t} = \frac{\pi_t - (\pi_t - \pi_{t-2})}{\pi_t}$$
$$= 1 - \frac{\Delta\pi_2}{\pi_t}, \cdots,$$

equation (6) may be rewritten as

$$\begin{aligned} E_t(\pi_{t+1}) &= \pi_t\left[\alpha_0 + \alpha_1\left(1 - \frac{\Delta\pi_1}{\pi_t}\right) + \alpha_2\left(1 - \frac{\Delta\pi_2}{\pi_t}\right) + \cdots\right] \\ &= \pi_t\left[\sum \alpha_j - \sum \alpha_j\frac{\Delta\pi_t}{\pi_t}\right] \\ &= \pi_t\left[1 - \sum \alpha_j\frac{\Delta\pi_t}{\pi_t}\right] \end{aligned} \tag{7}$$

Substituting (7) into (2) yields

$$P_t^{\mathrm{B}} = \sum_s \frac{E_t(D_{t+s})E_t(\pi_{t+s})}{(1+r^{\mathrm{B}})^s}\theta_t^* = \theta_t^*\pi_t\left[1 - \sum \alpha_j\frac{\Delta\pi_j}{\pi_t}\right]\frac{E_t(D_{t+1})}{r^{\mathrm{B}} - g} \tag{8}$$

To examine the effect of political and expected exchange rate risks, we convert the price of A-share into foreign currency and then compute the ratio of the price of B-share to that of A-share:

$$\frac{P_t^{\mathrm{B}}}{P_t^{\mathrm{A}}\pi_t} = \theta_t^*\left[1 - \sum \frac{\alpha_j\Delta\pi_j}{\pi_t}\right]\frac{r^{\mathrm{A}} - g}{r^{\mathrm{B}} - g} \tag{9}$$

Logarithmic transformation yields

$$\ln P_t^{\mathrm{B}} - \ln(P_t^{\mathrm{A}}\pi_t) = \ln\theta_t^* + \ln\left[1 - \sum\frac{\alpha_j\Delta\pi_j}{\pi_t}\right] + \ln\frac{r^{\mathrm{A}} - g}{r^{\mathrm{B}} - g} \tag{10}$$

This equation decomposes the valuation differential between A-share and B-share into component elements attributable respectively to the effects of political risk, exchange rate risk and required-rate-of-return differential, respectively.

In general, $\alpha_j\Delta\pi_j/\pi_t$ is small relative to unity, therefore,

$$\ln\left[1 - \sum\frac{\alpha_j\Delta\pi_j}{\pi_t}\right] \approx \alpha_1\frac{\Delta\pi_1}{\pi_t} + \alpha_2\frac{\Delta\pi_2}{\pi_t} + \alpha_3\frac{\Delta\pi_3}{\pi_t} + \alpha_4\frac{\Delta\pi_4}{\pi_t} + \varepsilon_1 \tag{11}$$

Concerning exchange rate risk, it is noted that while the Chinese RMB has essentially pegged to the US dollar, the actual value of RMB has depreciated significantly against the dollar during the sample period. Besides, speculations that the RMB would further depreciate had never stopped, making exchange rate risk a real concern for foreign investors ex ante.

The analytical model can be operationalized as follows. The required rate of return for A-share investors can be defined as

$$r^{\mathrm{A}} = r_F^{\mathrm{A}} + \beta^{\mathrm{A}}(r_M^{\mathrm{A}} - r_F^{\mathrm{A}}) \tag{12}$$

where $r_M^{\mathrm{A}} - r_F^{\mathrm{A}}$ is the expected market risk-premium in the A-share market, which depends on the risk tolerance and investment opportunity set available to A-share investors.

Similarly, for the B-share investors, the required rate of return is

$$r^{\mathrm{B}} = r_F^{\mathrm{B}} + \beta^{\mathrm{B}}(r_M^{\mathrm{B}} - r_F^{\mathrm{B}}) \tag{13}$$

The risk tolerance profiles and investment opportunity sets available to the A-share and B-share investors are clearly different because the A-share market is open to Chinese domestic investors only while the B-share market may be considered as an integrated part of the global market accessible by all international investors. Similarly, the risk-free rates faced by A-share investors and B-share investors are also different. Taking the difference in the required rates of return by the two groups of

investors, we have

$$\begin{aligned} r^{\mathrm{A}} - r^{\mathrm{B}} &= r_F^{\mathrm{A}} - r_F^{\mathrm{B}} + \beta^{\mathrm{A}}(r_M^{\mathrm{A}} - r_F^{\mathrm{A}}) - \beta^{\mathrm{B}}(r_M^{\mathrm{B}} - r_F^{\mathrm{B}}) \\ &= r_F^{\mathrm{A}} - r_F^{\mathrm{B}} + E(MRP^{\mathrm{A}}) - E(MRP^{\mathrm{B}}) \end{aligned} \tag{14}$$

where $E(MRP)$ denotes the expected market risk premium.

Now, the last term in (10) can be written as

$$\ln\frac{r^{\mathrm{A}} - g}{r^{\mathrm{B}} - g} = \ln\left[1 + \frac{r^{\mathrm{A}} - r^{\mathrm{B}}}{r^{\mathrm{B}} - g}\right] = \frac{r^{\mathrm{A}} - r^{\mathrm{B}}}{r^{\mathrm{B}} - g} + \varepsilon_2 \approx \gamma(r^{\mathrm{A}} - r^{\mathrm{B}}) + \varepsilon_2$$

Using (14), we have

$$\begin{aligned} \ln\frac{r^{\mathrm{A}} - g}{r^{\mathrm{B}} - g} &\approx \gamma[(r_F^{\mathrm{A}} - r_F^{\mathrm{B}}) + E(MRP^{\mathrm{A}}) - E(MRP^{\mathrm{B}})] + \varepsilon_2 \\ &= \gamma(r_F^{\mathrm{A}} - r_F^{\mathrm{B}}) + \delta + \varepsilon_2 \end{aligned} \tag{15}$$

Substituting (11) and (15) into (10) yields

$$\begin{aligned} &\ln P_t^{\mathrm{B}} - \ln(P_t^{\mathrm{A}}\pi_t) \\ &\approx \theta_t + \alpha_1\frac{\Delta\pi_1}{\pi_t} + \alpha_2\frac{\Delta\pi_2}{\pi_t} + \alpha_3\frac{\Delta\pi_3}{\pi_t} + \alpha_4\frac{\Delta\pi_4}{\pi_t} + \gamma(r_F^{\mathrm{A}} - r_F^{\mathrm{B}}) + \delta + \varepsilon_t \end{aligned} \tag{16}$$

Equation (16) breaks down the country risk of China into political risk, exchange rate risk, interest rate differential, and market-risk-premium differential. The latter two components arise from the fact that there is market segmentation between Chinese capital markets and the world capital markets. Should Chinese markets be fully integrated into the world markets, there would be no interest rate differential or market-risk-premium differential.

3. Empirical Test

We now empirically test the estimation model. Test data includes all the 43 companies listed on the Shanghai Stock Exchange that issue both Class A and B shares. Table 2 lists the company names and their A-share and B-share IPO dates. The data is derived from sources including China Statistics Yearbook, Bloomberg, Euromoney and various Chinese and US websites. The test period covers 1992–2000. We use quarterly data for the estimation, except for country risk. The definitions of the variables in the estimation model are as follows.

Table 2. *List of Firms Issuing Both Class A and B Shares*

No.	*Company name*	*A Share IPO*	*B Share IPO*	*No.*	*Company name*	*A Share IPO*	*B Share IPO*
1	Auto Instrument	19940324	19940429	23	Lianhua Fibre	19921013	19930928
2	China Textile Mach	19920805	19920728	24	Lujiazui	19930628	19941122
3	Chlor Alkali	19921112	19920820	25	Material Trading Center	19940204	19940330
4	Daheng Technology	20001129	19971021	26	Narcissus Electric*	19930106	19941110
5	Dajiang (Group)	19931122	19931216	27	Phoenix	19931008	19931119
6	Dazhong Transportation	19920807	19920722	28	Posts & Telecoms	19931018	19941020
7	Diesel Engine	19940311	19931229	29	Refrige Compressor	19921113	19930118
8	Eastern Communication	19961126	19960809	30	Rubber Belt	19920828	19920728
9	Erfangji	19920410	19920701	31	Sanmao Textile	19931108	19931231
10	First Pencil	19920814	19920728	32	Shanggong	19940311	19940114
11	Forever	19940114	19931115	33	Shanghai New Asia	19920608	19941215
12	Friendship	19940204	19940105	34	Shanghai Worldbost	19970703	19960726
13	Hainan Airlines	19991125	19970626	35	Shangling Electric	19940224	19940114
14	Haixin	19940404	19931209	36	Steel Tube	19940311	19940316
15	Heilongjiang Electric	19960701	19960422	37	Tianjin Marine Ship	19960909	19960430
16	Hero	19940311	19931229	38	Tyre & Rubber	19921204	19920828
17	Huangshan Tourism	19970506	19961122	39	Vacuum Electron	19910102	19920221
18	Huaxincem	19940103	19941209	40	Wai Gaoqiao	19930504	19930726
19	Jin Jiang Tower	19930607	19931018	41	Wing Sung	19920820	19920722
20	Jinan Motorcycle	19931206	19970617	42	Yaohua Pilkington	19940114	19931213
21	Jinqiao	19930326	19930531	43	Zhenhua Port Machinery	20001221	19970805
22	Jinzhou Port	19990609	19980519				

The dependent variable, the valuation differential between Class A and B shares, is defined as the difference between the natural logs of A-share and B-share quarterly closing prices (both expressed in US dollars). We use the Euromoney country risk weighting for China as a proxy of its political risk. The Euromoney country risk weighting is one of several better-known indexes that incorporate economic, social and political factors into an overall measure of business climate.[5] Euromoney publishes its country risk weighting twice a year in March and September, respectively. We use the March weighting for the second and third quarter, and the September weighting for the fourth quarter and the first quarter of the following year. Change in exchange rate is defined as the first difference in USD/RMB exchange rates for four quarters back, i.e., (Exchange Rate_t – Exchange Rate_{t-1}), (Exchange Rate_t – Exchange Rate_{t-2}), (Exchange Rate_t – Exchange Rate_{t-3}), and (Exchange Rate_t – Exchange Rate_{t-4}). The yields of 5-year Chinese and US government bonds are used as proxies for the risk free rates for domestic and foreign investors, respectively. The market risk differential is defined as the difference in the expected risk premium between an A-share and a B-share of the same company. We use the US risk free rate and market risk premium as proxies for the international risk free rate and market risk premium because of the preponderance of US shares in an international portfolio. After deleting observations with missing values, the sample includes 1,051 pairs of quarterly observations of corresponding Class A and B shares for 40 firms.

Table 3 presents descriptive statistics. Both the raw prices of A-shares and B-shares and the logs of prices are reported. The logs of the A-share price and the B-share price are negative because the prices are fractions when expressed in US dollars. The difference between the logs of A-share and B-share prices is quite large, relative to the respective prices. As indicated, we use the Euromoney country risk weighting for China as proxy for its political risk. Euromoney ranks countries in order of their risk, with a higher weighting for lower country risk. The maximum weighting is 100 (e.g., the weighting for US is 98.08 in 1992 and 94.92 in 2000). China has ranked between number 38 and 45 on the list of approximately 200 countries with a weighting between 56.51 and 72.81 over the test period. Its weightings show greater variability than most developed countries, reflecting higher political uncertainty. The official USD/RMB exchange rate decreased from 0.1879 in 1991 to 0.1160 in 1994, and then increased to 0.1208 in 2000. The exchange rates reported here are based on quarterly market rates, which display a higher degree of variability than the official rate. Lee *et al.* (1999) found that the yield of

Table 3. *Descriptive Statistics*

Variable	*Mean*	*Std. Dev.*	*Q1*	*Median*	*Q3*
(A-share price)	1.1569	1.2289	0.7096	0.9750	1.3673
Log of A-share price	− 0.0241	0.5335	− 0.3431	− 0.0253	0.3128
(B-share price)	0.3371	0.2798	0.1500	0.2400	0.4100
Log of B-share price	− 1.3550	0.7087	− 1.8971	− 1.4271	− 0.8916
(B price − A price)	− 0.8694	0.9039	− 0.4954	− 0.7621	− 1.0895
Log B − log A	− 3.5097	0.6130	− 3.9523	− 3.5001	− 3.0895
Political risk	62.0192	7.3754	56.5100	60.7200	70.5000
USD/RMB rate	0.1392	0.0288	0.1202	0.1208	0.1749
Chinese 5-yr bond yield	9.0483	3.9041	6.6600	9.0000	13.8600
US 5-yr bond yield	6.1244	0.8528	5.5200	6.0700	6.6000
A-share index return*	10.3307	43.3814	− 8.0402	1.0708	10.5459
B-share index return*	5.1233	35.5821	− 15.2120	− 5.2637	8.3036
S&P 500 index return*	3.7197	6.3832	− 0.2944	3.2878	7.1495
Hang Seng index return*	5.2771	15.7889	− 3.3368	6.0244	12.0670

*Quarterly.

1-month T-bill is a better proxy for risk free rate than T-bonds of longer maturity period. However, the shortest maturity period of Chinese government bond is five years, therefore, we are compelled to use the yield of 5-year Chinese and US government bonds as risk free rates. Overall, the yield of Chinese bonds is higher than that of US bond. The Shanghai Stock Exchange compiles two A-share Indexes, one based on thirty A-shares and the other based on one hundred A-shares. We use the 100 A-share Index to calculate A-share returns because it is a more comprehensive indicator. The S&P 500 Index is used to estimate B-share returns. Chow *et al.* (1999) has used a present-value model to explain the prices of 47 A-shares traded on the Shanghai Stock Exchange, and found the estimated parameters to be similar to those reported for stocks traded on the New York Stock Exchange, thus providing evidence on the comparability between the two market indexes. The Hong Kong Hang Seng Index returns are also reported for reference. The 100 A-share Index return as well as Shanghai B-share Index return are much more volatile than the S&P 500 Index return, reflecting the higher risk of the Chinese shares.

Note that equation (16) is an ex ante model, wherein different firms have different βs yielding different expected market risk premia, and wherein the coefficients γ and δ are firm specific. Accordingly, we add firm dummies to both the interest rate risk differential and market risk differential in the empirical model. The model is thus being applied on an ex ante basis.

The firm-specific regression results are presented in Table 4. The coefficient estimate for political risk is 0.0388, significant at the 0.0001

Table 4. *Regression Results of the Ex Ante Model*

N = 1,051	*F Value = 30.55*	*Prob. > F = 0.0001*		*Adj. R^2 = 0.7000*
Variable	*Coefficient*	*Std. Err.*	*t-statistic*	*Prob. > t*
Intercept	− 4.1221	0.1264	− 32.62	0.0000***
Political Risk	0.0388	0.0018	22.02	0.0000***
$USD/RMB_{t-(t-1)}$	0.0214	0.0138	1.55	0.1203
$USD/RMB_{t-(t-2)}$	0.0079	0.0138	0.58	0.5650
$USD/RMB_{t-(t-3)}$	− 0.0186	0.0138	− 1.35	0.1774
$USD/RMB_{t-(t-4)}$	− 0.0095	0.0097	− 0.98	0.3275
$Firm_2$*RFD	0.0306	0.0135	2.28	0.0230**
$Firm_3$*RFD	0.0424	0.0135	3.15	0.0017***
$Firm_4$*RFD	0.0386	0.0135	2.87	0.0043***
$Firm_5$*RFD	0.0758	0.0142	5.33	0.0000***
$Firm_6$*RFD	0.0697	0.0137	5.07	0.0000***
$Firm_7$*RFD	0.0738	0.0148	4.98	0.0000***
$Firm_8$*RFD	− 0.0327	0.0323	− 1.01	0.3119
$Firm_9$*RFD	0.0400	0.0137	2.91	0.0037***
$Firm_{10}$*RFD	0.0297	0.0148	2.01	0.0449**
$Firm_{11}$*RFD	0.0387	0.0148	2.62	0.0090***
$Firm_{12}$*RFD	− 0.0175	0.0148	− 1.18	0.2383
$Firm_{13}$*RFD	0.1155	0.3079	0.38	0.7077
$Firm_{14}$*RFD	− 0.0043	0.0153	− 0.28	0.7772
$Firm_{15}$*RFD	0.0409	0.0312	1.31	0.1895
$Firm_{16}$*RFD	0.0177	0.0148	1.20	0.2323
$Firm_{17}$*RFD	0.0276	0.0162	1.70	0.0898*
$Firm_{18}$*RFD	0.0313	0.0367	0.85	0.3937
$Firm_{19}$*RFD	− 0.0191	0.0367	− 0.52	0.6026
$Firm_{20}$*RFD	0.0187	0.0142	1.31	0.1900
$Firm_{21}$*RFD	0.0316	0.0135	2.35	0.0191**
$Firm_{22}$*RFD	0.1462	0.2990	0.49	0.6249
$Firm_{23}$*RFD	0.0218	0.0137	1.60	0.1106
$Firm_{24}$*RFD	− 0.0091	0.0162	− 0.56	0.5751
$Firm_{25}$*RFD	0.0234	0.0323	0.72	0.4691
$Firm_{26}$*RFD	0.0649	0.0142	4.57	0.0000***
$Firm_{27}$*RFD	0.0231	0.0162	1.42	0.1560
$Firm_{28}$*RFD	0.0254	0.0135	1.89	0.0592*
$Firm_{29}$*RFD	− 0.0014	0.0135	− 0.10	0.9169
$Firm_{30}$*RFD	0.0302	0.0148	2.04	0.0416**
$Firm_{31}$*RFD	− 0.0024	0.0148	− 0.16	0.8725
$Firm_{32}$*RFD	0.0552	0.0148	3.73	0.0002***
$Firm_{33}$*RFD	0.0100	0.0148	0.68	0.4975
$Firm_{34}$*RFD	0.0066	0.0312	0.21	0.8321
$Firm_{35}$*RFD	0.0624	0.0135	4.64	0.0000***
$Firm_{36}$*RFD	0.0100	0.0137	0.73	0.4674
$Firm_{37}$*RFD	0.0070	0.0137	0.51	0.6089
$Firm_{38}$*RFD	0.0089	0.0137	0.65	0.5152
$Firm_{39}$*RFD	0.0960	0.0403	2.38	0.0174**
$Firm_{40}$*RFD	0.1117	0.0148	7.55	0.0000***
$Firm_2$	0.0652	0.0907	0.72	0.4727
$Firm_3$	− 0.0867	0.0907	− 0.96	0.3395
$Firm_4$	− 0.1989	0.0911	− 2.18	0.0292**

Table 4. *Continued*

N = 1,051	*F Value = 30.55*	*Prob. > F = 0.0001*		*Adj. R^2 = 0.7000*
Variable	*Coefficient*	*Std. Err.*	*t-statistic*	*Prob. > t*
$Firm_5$	− 0.0287	0.0921	− 0.31	0.7554
$Firm_6$	0.7101	0.0907	7.83	0.0000***
$Firm_7$	0.1587	0.0921	1.72	0.0852*
$Firm_8$	0.6271	0.0990	6.33	0.0000***
$Firm_9$	− 0.0448	0.0907	− 0.49	0.6218
$Firm_{10}$	− 0.2898	0.0921	− 3.15	0.0017***
$Firm_{11}$	0.3249	0.0921	3.53	0.0004***
$Firm_{12}$	− 0.2597	0.0921	− 2.82	0.0049***
$Firm_{13}$	1.3917	0.9784	1.42	0.1552
$Firm_{14}$	0.4344	0.0921	4.72	0.0000***
$Firm_{15}$	0.6632	0.0967	6.86	0.0000***
$Firm_{16}$	0.1458	0.0921	1.58	0.1137
$Firm_{17}$	0.2333	0.0924	2.53	0.0117**
$Firm_{18}$	0.7628	0.1069	7.14	0.0000***
$Firm_{19}$	0.5848	0.1069	5.47	0.0000***
$Firm_{20}$	0.0798	0.0921	0.87	0.3864
$Firm_{21}$	0.2928	0.0920	3.18	0.0015***
$Firm_{22}$	0.8605	0.9296	0.93	0.3549
$Firm_{23}$	− 0.1638	0.0921	− 1.78	0.0756*
$Firm_{24}$	0.3490	0.0924	3.78	0.0000***
$Firm_{25}$	0.3215	0.0990	3.25	0.0012***
$Firm_{26}$	− 0.1592	0.0921	− 1.73	0.0841*
$Firm_{27}$	0.1499	0.0924	1.62	0.1051
$Firm_{28}$	0.0637	0.0916	0.70	0.4870
$Firm_{29}$	− 0.2949	0.0907	− 3.25	0.0012***
$Firm_{30}$	0.2206	0.0921	2.39	0.0168**
$Firm_{31}$	− 0.1732	0.0921	− 1.88	0.0604*
$Firm_{32}$	0.5298	0.0921	5.75	0.0000***
$Firm_{33}$	− 0.2773	0.0921	− 3.01	0.0027***
$Firm_{34}$	0.2483	0.0967	2.57	0.0103**
$Firm_{35}$	− 0.0191	0.0911	− 0.21	0.8343
$Firm_{36}$	0.5289	0.0896	5.90	0.0000***
$Firm_{37}$	0.0676	0.0921	0.73	0.4643
$Firm_{38}$	− 0.1991	0.0907	− 2.19	0.0285**
$Firm_{39}$	0.3277	0.1138	2.88	0.0041***
$Firm_{40}$	0.2384	0.0921	2.59	0.0098***

*Significant at the .01 level. **Significant at the .05 level. ***Significant at the .01 level.

Political Risk: Euromoney country risk weighting for China.
USD/RMB: US dollar/RMB yuan exchange rate.
$Firm_i$*RFD: Firm-specific risk free rate differential (γ).
$Firm_i$: Firm-specific market risk differential (δ).

level. Recall that political risk is proxied by the Euromoney country risk weighting that takes into account country-specific factors such as economic performance, politic stability, debt indicators, access to bank lending, access to short-term finance, access to capital markets, discount on forfeiting, credit ratings, and debt to default or rescheduled ratio. Since a lower weighting indicates greater political risk, a significantly positive correlation between the valuation differential and political risk implies that higher political risk as perceived by international investors would lead to greater underpricing of B shares relative to A shares. The difference between the emerging Chinese stock market and seasoned markets in developed countries as reflected in political risk is thus a significant determinant of the valuation differential between Class A and B shares.

Table 4 also shows that for the exchange-rate risk, none of the four coefficients in the adaptive expectation model are significant. This may be due to the fact that RMB has been largely managed on a fixed-rate regime vis-à-vis the US dollar over the test period, therefore, the exchange rate has limited influence on the B share price.

For firm-specific interest-rate differential (γ in equation (16)), we expect an inverse association between the valuation differential and interest risk differential because either higher Chinese, or lower US, risk free rate would induce foreign investors to pay a higher price for B-shares, thus reducing the difference between Class A and B shares prices. In other words, we expect γ to be positive in general. From the results in Table 4, we found that the mean of the firm-specific coefficient estimates for interest rate risk is 0.0343, thirty-two of the firm-specific coefficient estimates are positive (eighteen of them are significant at the conventional level) and only seven are negative (none of them are significant at the conventional level). These results clearly support the inverse association between valuation differential and interest risk differential.

Finally, Table 4 reports the firm-specific market risk differentials (δ). Likewise, we expect an inverse association between valuation differential and market risk differential for the reason that higher Chinese, and/or lower US, market risk premium would drive down class A share price and/or drive up class B share price, thereby reducing the price difference between Class A and B shares. As the dependant variable, the valuation differential, is defined as log of B-share price minus log of A-share price, we expect δ to be generally positive. The results of Table 4 show that the δ of twenty-six firms have positive signs (eighteen of them are significant at the conventional level) and the other thirteen have negative signs (nine of them are significant at the conventional level). The mean of the firm-specific δ

estimate is 0.2132. Again, the positive sign of the mean and the majority of the firm-specific coefficient estimates support the inverse association between valuation differential and market risk differential. The negative sign of some of the estimates may be accountable by firm-specific factors not controlled for in the model. For example, Fernald and Rogers (2000) found that foreigners pay a lower relative price for companies with a higher proportion owned by the state. Overall, the results suggest that political risk and market segmentation, which is reflected in the interest rate differential and the market-risk-premium differential, play a critical role in determining the valuation differential between Class A and B shares.[6]

4. Conclusion

China's effort to reap the benefits of privatization while retaining public ownership in listed companies is an interesting experiment. The government imposes strict segmentation on the stock market to prevent private and foreign investors from acquiring controlling interest in Chinese listed companies. While the domestic A-share market has experienced an exponential growth during the last decade, the B-share market is much less active. The hesitation of international investors reflects their concern with the country-specific risk in the Chinese stock market, thus resulting in a substantial valuation differential between Class A and B shares. This paper develops an estimation model to decompose the valuation differential into components attributable to the effects of political risk, exchange rate risk, interest rate risk and market risk. The empirical test provides strong evidence that political risk, which has an overall impact on all the other factors, is an important determinant of the valuation differential.

The Chinese government has recently taken two measures to revive the B-share market. The first measure is to improve the corporate governance of listed companies in order to increase international investors' confidence. The success of emerging markets, such as China, to a considerable degree, depends on the effectiveness with which their corporate governance systems can protect investors' interests. The second measure is to open up the B-share market to Chinese domestic investors who posses foreign currencies for trading, as effective of February 2001.[7] These measures may reduce, but still not totally eliminate, the valuation differential between Class A and B shares. The valuation differential will continue to exist so long as A-share and B-share investors have different required rates of return, subject to the changing composition of B-shareholders from

exclusively international investors to inclusion of both Chinese domestic and foreign investors.

Notes

1. The state and legal person shares are non-transferable except with domestic institutions upon approval by the Chinese Securities Regulatory Commission.
2. In addition, Chinese listed companies also issue H shares (listed on the Hong Kong Stock Exchange), and N shares (listed on the New York stock Exchange).
3. There is also a strict segmentation between the stock exchanges, forbidding arbitraging between the two exchanges.
4. Fernald and Rogers (2000) discusses the price difference between Class A and B shares from a different angle.
5. Some other examples are J.P. Morgan Country Risk Index (bank-focused) and Business Environment Risk Index (BERI, non-bank-focused).
6. We also use quarterly average prices to run the regression, the results are the same in terms of the signs and significance levels of the coefficient estimates and explanatory power of the model.
7. But the domestic A-share market remains closed to foreign investors, and the Chinese Security Regulation Commission has announced that it will not converge A-shares with B-shares in the next five year.

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