The A-H Premium and Its Impact On the Seasoned Equity Offerings of Dual-listed Companies

by

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Abstract

It is known that firms may prefer to issue new shares at higher prices and repurchase them at lower prices. The A-H premium, defined by the ratio of A-share price to H-share price, is another price indicator unique for Hong Kong and mainland China dual-listed companies. Using the data of seasoned equity offerings from 119 dual-listed firms, this paper finds that companies are more likely to issue A shares when the price premium is high. In addition, firms in different industries also react differently towards price premium.

1. Introduction

Stimulated by rapid economic growth and effective policy changes, China's stock market has become one of the biggest players in today's financial world. A large number of Chinese firms have cross-listed in America, Hong Kong, the UK, and even Singapore, playing a crucial role in promoting the world's financial market. According to *Financial Times* and the Hong Kong IPO market analysis from Deloitte, 33 Chinese firms launched IPOs in America during 2018 while over 100 Chinese companies went public in Hong Kong, which contributed to 95% of the total funds raised. Such abundant cross-listing cases have generated huge market attention and investment opportunities while also drawing more and more research interest.

In the Chinese setting, previous studies intensively focus on the stock price itself, such as the A-share premium puzzle, the price informativeness differences between A shares and H shares, etc. However, few studies examine whether or how companies adjust their financing strategies in response to those stock price differences. That is, how do these differences impact firms' decisions about whether to apply debt financing or equity financing, and if equity, to issue A shares or H shares when raising money.

Indeed, to examine the influence of cross-listing in Hong Kong is both interesting and challenging. From firms' perspectives, they are faced with two different stock prices, two different markets, two types of investors, and two sets of regulatory policies. Therefore, they must consider: Where to raise money? When to raise money? Should they issue equity or debt? Should they issue A shares or H shares? In the following section, I will introduce some factors that may offer potential answers to the questions above. In addition, those questions and factors are the initial inspiration and motivation for my study.

2. Background and Hypothesis Development

2.1 Price Premium

The A-share premium has been a puzzle for a long time. For the same company, its A -share price is higher than B shares' and H shares'. Chen, Li and Rui (2014) have tested the major four main hypotheses made by previous studies and find that the illiquidity of B shares provides strong evidence to explain the lower price. However, Carpenter and Whitelaw (2017) state that after the Qualified Foreign Institutional Investor (QFII) program in 2002, which allows certain foreign investors to access A shares, B share issuance was weakened and the A-B premium gradually lost its practical significance.

Interestingly, the A-share premium over H shares stays strong even though the Shanghai- and Shen Zhen-Hong Kong Stock Connect program has paved the way for cross-market trading (Carpenter and Whitelaw 2017). The Shanghai-Hong Kong Stock connect program was implemented in November 2014, and allows investors in Hong Kong and mainland China to trade the A shares and H shares respectively. It also offers tax benefits for investors from both Hong Kong and mainland China. Two years later, the Shen Zhen-Hong Kong Stock Connect program was launched in Dec 2016. Figure 1 shows that instead of dying away, the A-H premium actually increased from Oct. 2014 to Jul. 2015 and it stayed positive throughout the following years. The rise of the premium starting in 2014 might result from

the increasing accessibility and popularity of A shares. In addition, the A-H premium reveals exogenous information such as social and economic shocks. According to Figure 1, the A-H premium increased slightly in the mid of 2019 during the Hong Kong protests movement. It also jumped in January 2020 in the beginning of COVID-19. For the same company, its A share and H shares may be subject to different markets, investors and discount rates which can reflect on the A-H premium fluctuations.

Dual-listing also changes the price informativeness of equity. Loh (2016) finds that H-share price informativeness of dual-listed firm can be lower compared to firms that are not dual-listed while Carpenter, Lu and Whitelaw (2017) find that A-share price informativeness of dual-listed firms is lower compared to that of pure mainland-listed firms. And the lower informativeness may also result in more fluctuations in the price premium.

2.2 Managerial Learning & Market Timing Hypothesis

The managerial learning hypothesis argues that managers can learn from stock prices to adjust their future investments. For dual-listed firms, they have two prices to learn from and Hu et al. (2016) find that firms' investing activities are more responsive to H-share prices. Based on this, if we switch our focus from investing to financing, we may be curious about which price financing is more sensitive to. If information asymmetry holds, managers are more informed when A/H stocks are over-valuated and may issue A/H stocks correspondingly.

This is connected with the market timing theory. Baker and Wurgler (2001) suggest that companies prefer to issue new shares when the prices are high and repurchase them at low prices and find that such practice has profound impacts on the capital structure. Meanwhile, a survey shows that two thirds of the CFOs regard the undervaluation or overvaluation of equity as a key factor for their financing decision (Graham and Harvey 2001).

The A-H premium under the dual-listing context is another indicator that represents the relative price of the shares in two different markets. For dual-listed companies with both A shares and H shares in hand, it would be interesting to ask whether companies consider the relative price of their shares when deciding where to issue those shares. For example, when the price premium is high, firms may choose to issue A shares to capture the pricing benefits. When the price premium is low, the benefits of issuing A shares may be offset by regulatory costs or other factors and firms may issue H shares instead.

Therefore, analyzing the financing behavior of firms dual-listed in Hong Kong may make a contribution to the discussion further by considering the role of A-H premium. Based on the analysis above, this study will test the following hypothesis.

Hypothesis: Firms will issue A shares when the price premium is high and will issue H shares when the price premium is low

3. Methodology and Outline of Data

This study focuses on the Hong Kong and mainland China dual-listed firms and analyzes their financing choice at seasoned equity offerings. Because the firms only have two choices for equity issuance--A shares or H shares--I apply the binary choice model to test the hypothesis. Currently, there are two binary choice models. One is the Probit Model and the other is the Logit Model. Both models have similar designs and use the maximum likelihood estimation. The Probit Model assumes a standard normal distribution for the error while the Logit Model assumes that the error follows a logistic distribution. For the purpose of minimizing the effects from different models and generating more comprehensive results, this study uses both models to test the hypothesis. The two sections below describe the design of models and it follows the description of Jeffrey Wooldridge's book, Introductory Econometrics: A Modern Approach.

3.1 Probit Model & Logit Model

The first equation demonstrates the basic idea behind the models.

$$\Pr(\mathrm{Y} = 1 \mid \mathrm{X}) = \mathrm{G}(X^T\beta)$$

$$\Pr(\mathrm{Y} = 1 \mid \mathrm{X}) = \Phi(\mathrm{X}^{\mathrm{T}}\beta)$$

X stands for the vector of regressors and β stands for the vector of coefficients including β_0. In this study, the X could include the A-H premium, the proportion of total market capitalization that are A shares, how long it is since listing and industry dummies etc. G is the function to make sure that the outcome is between zero and one. For the Probit Model, G is the Cumulative Distribution Function of the standard normal distribution and usually written as Φ. The equation means that the probability of Y=1 under the condition of X is measured by the CDF of the standard normal distribution. For the Logit Model, G stands for logistic function that is written in equation (3).

$$\mathrm{G}(\mathrm{X}^{\mathrm{T}}\beta) = \exp(\mathrm{X}^{\mathrm{T}}\beta)\,/[1 + \exp\,(\mathrm{X}^{\mathrm{T}}\beta)]$$

3.2 Maximum Likelihood Estimation

According to Jeffrey Wooldridge's book, Introductory Econometrics: A Modern Approach (page 588), the maximum likelihood estimator can be calculated through the following process:

$$f(y|\boldsymbol{x_i};\boldsymbol{\beta}) = [G(\boldsymbol{x_i}\boldsymbol{\beta})]^y[1 - G(\boldsymbol{x_i}\boldsymbol{\beta})]^{1-y}, y = 0, 1$$

Here, f is the density of y on condition of x and β. G is the standard normal cdf.

Then we can derive the "log-likelihood function" by taking log of the equation above:

$$\ell_i(\boldsymbol{\beta}) = y_i log[G(\boldsymbol{x_i}\boldsymbol{\beta})] + (1 - y_i) log[1 - G(\boldsymbol{x_i}\boldsymbol{\beta})]$$

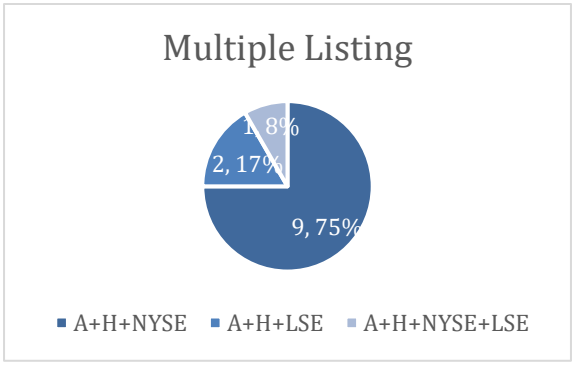
The sum of log-likelihood of the sample of n observations is defined as:

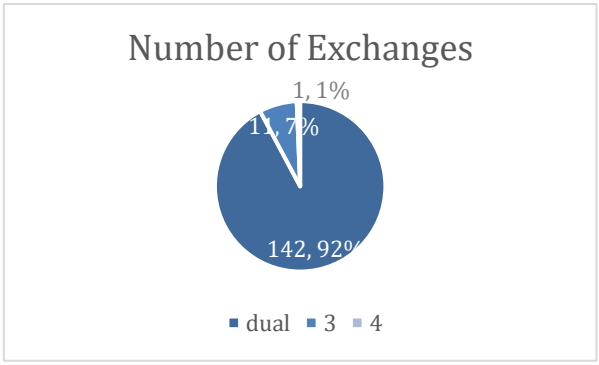
$$\mathcal{L}(\boldsymbol{\beta}) = \sum_{i=1}^{n} \ell_i(\boldsymbol{\beta})$$

The estimator $\widehat{\boldsymbol{\beta}}$ is calculated through the maximization of $\mathcal{L}(\boldsymbol{\beta})$.

3.3 Description of the Companies

Currently, there are 154 Chinese companies that have listed overseas with more than one listing place, 142 of which are dual-listed firms. The rest are cross-listed in three markets or even four. There are twelve companies that have listed in more than two places. Nine out of the twelve firms are listed in Hong Kong, mainland China and New York while two are listed in Hong Kong, mainland China and London. There is one firm that has listed in the four markets listed above.





While many companies are listing overseas, there are six companies that are delisted from the markets over the past few years and they are summarized in the following table:

Table 1: Information for Privatized Firms

Name	*Listing Year*	*Delisting Year*	*Industry*
Jingwei Textile Machinery Company	1996	2015(H)	Industrial Machinery
China CNR Corporation	2014	2015(A)	Machinery
China XLX Fertiliser Ltd.	2007	2014(SGX)	Agricultural Chemicals
China Merchants Property Development	1995	2015(A)	Real Estate
Yanzhou Coal Mining Company Limited	1998	2017(NYSE)	Coal & Fuels
WuXi AppTec Co., Ltd.	2007	2015(NYSE)	Bio Tech

Firms' listing and delisting choices are complex. For example, WuXi AppTec Co., Ltd has privatized from NYSE in 2015 and it just finished listing on the SSE on May 8th-2018

and in HKEX on Dec 13th 2018. China XLX also listed in Hong Kong after privatization. Therefore, to stay concise and keep consistent with the empirical design, this paper will only focus on the dual-listed firms whose shares are currently traded in China and Hong Kong.

The sample then is reduced to 119 dual-listed firms and from the time of 1991 to 2020. China Vanke Co., Ltd. is the first one to list in Mainland China on Jan 29th 1991 while Tsingtao Brewery Co., Ltd is the first one to list in Hong Kong on Jul 15th 1993. Tsingtao Brewery also listed in mainland China in 1993 and became the first dual-listed firm. The numbers of companies in each industry category and the total market capitalization from 1991 to 2020 are summarized in Figure 2.

Among those companies, the largest proportion are in the industry sector, and then come Finance and Utilities. However, in terms of market capitalization, financial companies make the largest proportion while energy and industrials firms are comparatively the second and third. The market of dual-listed firms grew rapidly from 2015.

After finalizing the choice of firms, this paper tracks the seasoned equity offerings (SEOs) in Hong Kong and mainland China during the listing period. An outline of the data is shown in the following section.

Table 2: Summary Statistics for A-share Issuance

Variables	*N*	*Mean*	*Median*	*Std. Dev.*	*p5*	*p95*	*Min*	*Max*
Total Funds Raised	127	11.64	6.41	16.17	0.26	45.00	0.90	100.00
Cost of Issuance	102	0.046	0.034	0.044	0.006	0.141	0.002	0.236
Planned Number of Shares to Issue	125	1.19	0.60	2.699	0.032	2.97	0.009	27.47
Actual Number of Shares Issued	127	1.11	0.45	2.63	0.018	2.48	0.005	25.19

Total funds raised and cost of issuance are in billions RMB. The planned number of shares to issue and the actual number of shares issued are measured in millions.

Here the cost of issuance includes: underwriting expenses, agency expenses, auditing expenses and lawyer expenses etc.

Firms usually issue new stocks only once in a given year, although there are some firms that issue twice or even three times in a year. In general, the planned number of shares is higher than the actual number of shares issued. For the Hong Kong market, the frequency of H share issuance by dual-listed firms is much lower that of the firms listed in Hong Kong only. With the A share choice, it is interesting to analyze the reason why a few dual-listed firms still choose H shares.

Table 3: Summary Statistics for H-Share Issuance

Variables	*N*	*Mean*	*Median*	*Std. Dev.*	*p5*	*p95*	*Min*	*Max*
Total Funds Raised	31	8.42	3.21	12.05	0.632	29.17	0.612	60.51
Cost of Issuance	20	0.054	0.033	0.063	0.002	0.202	0[1]	0.270
Planned Number of Shares to Issue	73	1.192	0.450	2.292	0.058	5.835	0.043	15.73
Actual Number of Shares Issued	63	1.304	0.466	2.399	0.067	5.81	0.043	15.73
Total Funds Raised	31	8.42	3.21	12.05	0.632	29.17	0.612	60.51

Total funds raised and cost of issuance are in billions RMB. The planned number of shares to issue and the actual number of shares issued are measured in millions.

The dataset is derived from Wind and does not list the cost of issuance explicitly. I use gross proceeds minus net process as a proxy for the expenses on new issuance in order to compare with the statistics in Table 2. There is a zero cost of issuance that is carried out by China Eastern Airlines in Sep. 2012. The issuing method is placing, which usually involves selecting a base of institutional investors and allowing firms to reduce the costs of issuing new shares. Except that, the data is relatively comparable to Table 3.

Because the regulatory policies are very different between mainland China and Hong Kong, the seasoned equity offering incurs different types of costs which are summarized in detail in Section 5.1. For example, an A-share SEO requires companies to have positive earnings, which leads to direct costs from auditing and legal service, while an H-share SEO requires further communications with the minority shareholders, which could cause more indirect costs. Therefore, it would be reasonable to compare the two types of SEOs and see whether there are significant differences.

By comparing the numbers in Table 2 and Table 3, the mean of each indicator stays relatively at the same level. I then summarized the data for A-H premium. Table 4 below shows the A-H premium at the time of issuance by industry type:

[1] The offering type is placing, which usually incurs less cost than public sales.

Table 4: Summary Statistics for A-H Premium

Full Sample A-H Premium

Industry Category	*N*	*Mean*	*Median*	*Std. Dev.*	*p5*	*p95*	*Min*	*Max*
Overall	169	1.92	1.53	1.20	0.90	4.18	0.73	8.70
Consumer Discretionary	5	2.29	1.44	1.50	1.29	4.82	1.29	4.82
Financials	41	1.21	1.21	0.29	0.86	1.65	0.74	2.24
Energy	9	2.43	2.71	1.06	0.93	4.26	0.93	4.26
Health Care	12	1.92	1.42	1.73	0.97	7.29	0.97	7.29
Industrials	58	2.12	1.80	0.91	1.10	4.10	1.03	5.93
Information Technology	6	4.61	4.34	3.16	1.07	8.70	1.07	8.70
Materials	22	1.68	1.42	0.64	0.98	2.88	0.73	2.92
Utilities	14	1.79	1.78	0.65	0.88	2.91	0.88	2.91
Real Estate	1	1.07	1.07	.	1.07	1.07	1.07	1.07
Consumer Staples	1	4.31	4.31	.	4.31	4.31	4.31	4.31

In general, the mean of A-H premium is above 1.0 across different industries while the financial companies have lower A-H premiums compared to companies in other categories. The following table summarizes the A-H premium at different types of SEO across industries. Besides the full sample, the A-H premium also varies between the two markets across industries. The Table 4 provides the summary for A-H premiums at seasoned equity offerings in mainland China and Hong Kong.

Table 5: Summary Statistics for A-H Premium in Each Market

A-H Premium at A SEO

Industry Category	*N*	*Mean*	*Median*	*Std. Dev.*	*p5*	*p95*	*Min*	*Max*
Overall	107	2.09	1.64	1.31	1.06	4.31	0.73	8.70
Consumer Discretionary	4	2.55	1.99	1.61	1.39	4.82	1.39	4.82
Financials	22	1.29	1.24	0.28	1.03	1.65	0.94	2.24
Energy	4	3.19	3.08	0.79	2.36	4.26	2.36	4.26
Health Care	7	2.46	1.61	2.16	1.35	7.29	1.35	7.29
Industrials	39	1.99	1.82	0.68	1.10	3.48	1.06	4.18
Information Technology	5	5.32	5.73	2.95	1.74	8.70	1.74	8.70
Materials	16	1.80	1.49	0.68	0.73	2.92	0.73	2.92
Utilities	9	1.98	1.98	0.66	0.89	2.91	0.89	2.91
Consumer Staples	1	4.31	4.31	.	4.31	4.31	4.31	4.31

A-H Premium at H SEO

Industry Category	*N*	*Mean*	*Median*	*Std. Dev.*	*p5*	*p95*	*Min*	*Max*
Overall	62	1.62	1.38	0.93	0.88	3.48	0.74	5.93
Consumer Discretionary	1	1.29	1.29	.	1.29	1.29	1.29	1.29
Financials	19	1.12	0.96	0.28	0.74	1.78	0.74	1.78
Energy	5	1.82	1.57	0.85	0.93	2.72	0.93	2.72
Health Care	5	1.16	1.18	0.17	0.97	1.42	0.97	1.42
Industrials	19	2.38	1.17	1.24	1.03	5.93	1.03	5.93
Information Technology	1	1.07	1.07	.	1.07	1.07	1.07	1.07
Materials	6	1.37	1.26	0.41	1.05	2.14	1.05	2.14
Utilities	5	1.46	1.57	0.56	0.88	2.09	0.88	2.09
Real Estate	1	1.07	1.07	.	1.07	1.07	1.07	1.07

The results show that A-H premiums at A seasoned equity offerings are usually higher than that at H SEO. And the Figure 3 describes the pattern more clearly.

The dark blue bar shows the mean of A-H premium when the seasoned equity offerings are A shares. And the light blue bar shows the mean of A-H premium when the seasoned equity offerings are H shares. In general, the A-H premiums at A-share issuance are higher than that of H-share issuance across industry. There are two industries that only have one issuance. The consumer staples industry represented by Tsingtao Brewery launched A SEO once in March 2001, while the real estate company Vanke Co., Ltd offered H shares in March 2019.

Interestingly, China Vanke Co., Ltd. is the first one to list in Mainland China and it only issued H shares in its listing period. Conversely, Tsingtao Brewery Co., Ltd is the first company to list in Hong Kong and it only issued A shares during the sample period. Both firms may have abundant financing resources to facilitate their projects and thus do not issue new shares frequently. However, for their one-time SEO, both of them chose the place that is different from where they are initially listed. The preference for the different market offers some insights and in the regression analysis and I use the Time Since A/H Listing as well as the proportion of each shares to capture such effect.

The only exception where A-H premium is lower at A SEO is the Industrials category. And the following Figure 4 show the further break-down of this industry. Fifty-two percent of the Industrials categories are airlines which includes China Southern Airlines, China Eastern Airlines and Air China. On average, the A-H premium at H SEO of Airlines is higher than other businesses in this category, which may suggest specification of the Industrials category when generating dummy variables.

In addition, the A-H premium of Airlines is higher before 2010. For example, the price of China Southern Airlines reaches the highest point in 2007 and then decreases overtime without coming back again. As a result, the A-H premium for Airlines is extremely high at the SEO from 2008 to 2010. Therefore, this study creates three industry dummies for Airlines, Capital Goods and Other Transportation respectively. The Other Transportation category mainly includes firms that are running shipping business.

Table 6: Summary Statistics of Other Variables

Full Sample								
Variables	*N*	*Mean*	*Median*	*Std. Dev.*	*p5*	*p95*	*Min*	*Max*
A% of Total Shares	169	0.71	0.71	0.18	0.20	0.88	0.04	0.91
H% of Total Shares	169	0.25	0.24	0.12	0.12	0.47	0.09	0.96
Total Assets	169	2072	138.9	5283	5.27	15974	0.31	30109
Time Since A IPO	169	10.73	9.00	6.25	3.00	22.00	0.00	28.00
Time Since H IPO	169	10.86	10.00	6.32	2.00	22.00	1.00	26.00
A SEO								
Variables	*N*	*Mean*	*Median*	*Std. Dev.*	*p5*	*p95*	*Min*	*Max*
A% of Total Shares	107	0.71	0.75	0.17	0.51	0.86	0.04	0.91
H% of Total Shares	107	0.24	0.22	0.11	0.13	0.46	0.09	0.96
Total Assets	107	2568	131	6281	4.14	22210	1.31	30109
Time Since A IPO	107	10.52	9.00	5.98	3.00	22.00	0.00	23.00
Time Since H IPO	107	11.71	12.00	5.89	3.00	22.00	1.00	26.00
H SEO								
Variables	*N*	*Mean*	*Median*	*Std. Dev.*	*p5*	*p95*	*Min*	*Max*
A% of Total Shares	62	0.69	0.73	0.20	0.17	0.88	0.39	0.90
H% of Total Shares	62	0.27	0.27	0.14	0.12	0.48	0.10	0.96
Total Assets	62	1217	157	2669	13.33	5273	0.31	13459
Time Since A IPO	*62*	*11.08*	*11.00*	*6.71*	*3.00*	*22.00*	*1.00*	*28.00*
Time Since H IPO	62	9.40	7.00	6.80	2.00	22.00	1.00	23.00

Table 6 gives the summary for other variables used in this study. A% of Total Shares represents the proportion of total market capitalization that are A shares while H% of Total Shares are the proportional H shares. These two variables do not necessarily add up to 1, because there are considerable state-owned enterprises (SOEs) and certain proportion of their shares remain non-tradable. Total Assets describes the size of companies at the time of SEO. Time Since A IPO and Time Since H IPO captures how long the firm has listed in each market.

Before running the probit model, this paper uses a t-test to see whether the mean of the A-H premium at A SEO is higher than that of H SEO. And the result shows that the

difference is significant. This finding is consistent with the hypothesis that firms tend to issue A shares at higher A-H premium.

Table 7: t-Test for the A-H Premium at Each SEO

Group	*N*	*Mean*	*Std. Err.*	*Std. Dev.*	*95% Conf. Interval*
H SEO	62	1.620	0.118	0.926	1.38 1.86
A SEO	107	2.091	0.126	1.31	1.84 2.34
					t = -2.497

A_SEO is the dummy variable that equals to 1 when the SEO is in A share and equals 0 when firms choose to issue H shares. The test between group 0 and group 1 aims to measure the difference between A-H premium at A SEO and that at H SEO.

4. Empirical Results

There are four regressions, two for the probit model and two for the logit model. Since both models use the maximum likelihood estimation, I apply both of them to see whether they return different results. The difference between the logit and probit models is that the logit model assumes a logistic distribution of ε while the probit model assumes a standard normal distribution.

In the first two regressions, industry dummies are all in level I. However, in the previous analysis, the industrials category has higher A-H premium when issuing H shares than A-share issuance. Therefore, the last two regressions further specify the industrials category by using the Industrials_Capital_Goods, Industrials_Transportation and Industrials_Airline. All the regressions show that the coefficient of A-H premium is positive and significant at 95% confidence level.

The significant positive coefficient of the A-H premium shows that a higher A-H premium increases the probability that firms issue A shares. The firms may care about the relative price of their shares when deciding where to sell their new shares. Besides this finding, there are also many other interesting patterns. The proportion of H shares has

significant negative impact on firms' choice of A shares. This implies that when firms have large proportion of H shares, it's less likely that the companies will issue A shares. Time_since_H_IPO is the variable that counts how long it has been since the firm has listed in Hong Kong. The coefficient is positive and significant at 95% confidence level after breaking the Industrials into three parts, which means the longer the firms have listed in H shares, the more likely that the companies will issue A shares instead.

Besides the findings above, there are also some results that are a little counter intuitive and worth to do further analysis. Firstly, the total assets have very significant positive impact on the A share issuance. Carpenter and Whitelaw (2017) finds that larger companies usually have lower A-H premium. Therefore, the positive effect of total assets on A issuance accompanied with lower A-H premium is somehow surprising. In addition, Materials and Capital Goods have significant positive coefficient at 95% confidence level, suggesting that companies in these two sectors prefer to issue A shares. The reasons behind these results are discussed in the Section 5.

The regression results are summarized in the following table.

Table 8: Results for the Probit Model and Logistic Regression

	Dependent Variable: A_SEO			
Independent Variable	*Probit1*	*Logit1*	*Probit2*	*Logit2*
A-H Premium	0.272**	0.487**	0.311**	0.537**
	(0.126)	(0.239)	(0.136)	(0.248)
Proportion_A	-0.199	-0.264	-0.228	-0.377
	(1.046)	(1.778)	(1.102)	(1.876)
Proportion_H	-3.960**	-6.663**	-3.364**	-5.573*
	(1.692)	(2.942)	(1.702)	(2.922)
Total_Asset	0.00017***	0.00029***	0.00015***	0.00025***
	(0.00005)	(0.00010)	(0.00005)	(0.00010)
Time_since_A_IPO	-0.040	-0.068	-0.043	-0.068
	(0.028)	(0.048)	(0.028)	(0.047)
Time_since_H_IPO	0.054*	0.088*	0.067**	0.111**
	(0.029)	(0.051)	(0.030)	(0.052)
Real_Estate	0.000	0.000	0.000	0.000

	(.)	(.)	(.)	(.)
Industrials	0.932*	1.526*	-	-
	(0.514)	(0.841)	-	-
Information_Technology	1.321	2.084	0.836	1.299
	(0.845)	(1.419)	(0.786)	(1.310)
Materials	1.274**	2.084**	0.879**	1.447**
	(0.585)	(0.966)	(0.433)	(0.733)
Health_Care	1.081	1.721	0.773	1.210
	(0.680)	(1.123)	(0.572)	(0.960)
Consumer_Discretionary	1.564*	2.601*	1.073	1.813
	(0.864)	(1.472)	(0.728)	(1.262)
Utilities	0.641	1.023	0.194	0.314
	(0.610)	(0.994)	(0.458)	(0.756)
Financials	0.117	0.148	-0.129	-0.185
	(0.648)	(1.072)	(0.510)	(0.881)
Consumer_Staples	*0.000*	*0.000*	*0.000*	*0.000*
	(.)	*(.)*	*(.)*	*(.)*
Constant	*-0.179*	*-0.322*	*-0.082*	*-0.204*
	(1.131)	*(1.967)*	*1.233*	*(2.122)*
Industrials_Capital_Goods			*0.997***	*1.663***
			(0.408)	*(0.725)*
Industrials_Transportation			*0.932*	*1.569*
			(0.719)	*(1.263)*
Industrials_Airlines			*0.000*	*0.000*
			(.)	*(.)*
Consumer_Staples	*0.000*	*0.000*	*0.000*	*0.000*
	(.)	*(.)*	*(.)*	*(.)*
N	167	167	167	167

The superscripts ***, **, and * denote statistical significance at the 99%, 95%, and 90% levels, respectively

5. Discussion

5.1 Total Assets

From the analysis, total assets have significant positive impact on firms' choice of A share issuance at 99% confidence level. The different regulatory policies and requirements for new share issuance between Hong Kong and mainland China may also explain this finding. Before listing in A shares, a company is required to have positive earnings for three

consecutive years by the China Securities Regulatory Commission (CSRC), although for companies to list in SME and ChinaNext boards, the requirement is less stringent. And such requirement still holds for the seasoned equity offerings in A share. According to the CSRC, the general requirement for SEO is to have positive earnings for consecutive three years. There are also many detailed requirements for the financial status regarding the distressed assets, earnings management and audit report, etc. For rights issuance, the new shares should not exceed 30% of the total shares before issuance. And for public offerings, the ROE should be at least 6% for the three previous fiscal years while the price should not be lower than the average price over the past 20 days. Therefore, for A SEO, the company incurs costs from auditing and legal services.

Compared to the regulations of CSRC, the HKEX has relatively more relaxed requirements for the new share issuance regarding financial condition and earnings. The law of Hong Kong puts more emphasis on protecting the rights of existing shareholders while the threshold is easier to reach as long as shareholders have agreed on the issuance. According to research carried out by HKEX in 2019, companies listed in Hong Kong enjoy freedom and flexibility to issue new shares and the process can be "normally completed overnight."[2] The Listing Rule 13.36(2) has specified the requirements and process of the new share issuance. The existing shareholders give mandate to the issuer in the general meetings, which allows the company to issue new shares freely or under conditions that are specified in the meeting. Meanwhile, the number of new shares should not exceed 20% of the existing ones.

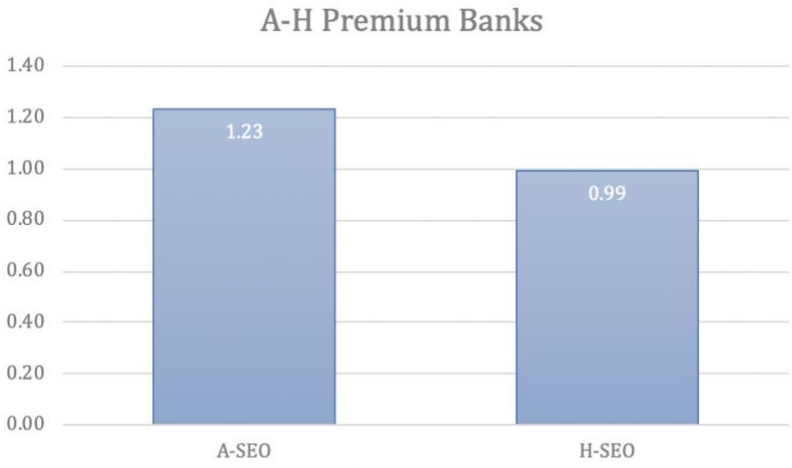
For seasoned equity offerings in Hong Kong, there are few requirements on the earnings of the firms. However, Listing Rule 13.36(2)(a) has required the firms to treat each existing shareholder equally at the new issuance and they should have the right to buy these

[2] Initial Public Offering (IPO) and Listing Process on the SEHK with Highlights (20).

shares in order to retain the same proportion. If certain shareholders—especially the overseas—are excluded from the new issuance, firms have to carry out legal enquires to ensure that such exclusion is necessary and then provide explanations to those shareholders respectively. Such concern can serve to protect the minority stockholders. And this might echo with what Doidge (2004) has shown that cross-listing increases the protection of minority investors.

With different regulatory policies, dual-listed firms can explore such complexity and choose the SEO market regarding their current financial status and other concerns. For those larger companies with more stable earnings, they can meet the earnings requirement and issue A shares. But for those relatively smaller, growth firms with more uncertainty in earnings, choosing H shares can be a more flexible and feasible way to raise money.

Another reason for the positive impact of total assets is that the sample contains considerable observations of banks. Banks usually have large assets and also prefer to issue A shares. The graph shows the average A-H premium at A SEO and H SEO. The difference of mean is smaller compared to other industries categories, which implies that when banks decide to issue A shares, the A-H premium does not need to be very high. However, when they issue H shares, the A-H premium is indeed lower than usual.



In addition, the companies in Materials and Capital Goods also have relatively large assets and they issue A shares more than H shares. Further analysis is shown in the industry effect.

5.2 Industry Effect

From the probit model and logit regression, results are consistent across different models. The materials and the capital goods in the Industrials category show significant positive impact on firms' choice of issuing A-shares. The following section will focus on possible reasons behind this finding regarding the characteristics of the two industries with attributes to the distinctive Chinese financial market.

For analyzing the seasoned equity offerings, it is worth a look at the previous research on IPOs in China because in the Chinese financial system seasoned equity offerings resemble IPOs in certain ways regarding the financial requirements and approval process of the CSRC. Both SEOs and IPOs in China require the company to have positive earnings for past three consecutive years and the complex vetting and approval of IPOs and SEOs have drawn research interest over the last decade. Shen (2016) studies the listing choice of Chinese companies and finds that companies in the industrials sector prefer to list in mainland China compared to US and Hong Kong. My paper further breaks down the Industrials into capital goods, airlines and transportation and finds that companies in the capital goods category prefer to issue A shares than H shares at SEO. Therefore, the previous research on IPOs may shed light on the reasons behind those findings.

There are many studies that test the theories or hypotheses from the United States in the Chinese financial market. However, as Carpenter and Whitelaw (2017) point out, the challenges of studying Chinese IPOs is to determine to what extent we can rely on the existing theories and how to understand the uniqueness of its financial system. For in China, the approval process is relatively longer with uncertainty about suspensions. The selection of

qualified companies may also be influenced by many factors such as the industry, state ownership or even the city where the company incorporates.

Piotroski and Zhang (2014) find that IPO activities increase at the political promotion period while the long-term stock returns of those listed during promotion are lower than those listed in non-promotion period. Luo, Tong & She (2017) further study the city-level IPO activities in response to the uncertainty during politician turnover period and find that turnover has negative effect on the number of IPOs. The negative impact is greater for local state-owned enterprises (SOEs) than central SOEs. Back to seasoned equity offerings, Aharony, Lee and Wong (2000) defines the industries that include petrochemicals, energy and raw materials as "protected" and find that firms in those industries enjoy softer requirements on profitability than "unprotected" firms.

Previous studies imply that the understanding of certain SEO patterns requires close analysis of the industry, the state ownership and public relations.

5.2.1 Materials

There are 10 companies categorized in the Materials and their information is summarized in Table 9.

Table 9: Information of Materials Companies

Company	*Subject*	*SOE*	*Total Assets (in Billions RMB)*
SCPH	Paper	N	97.96
ANSC	Steel	Y	87.81
GANFENG LITHIUM	Lithium	N	13.52
JCCL	Copper	Y	134.91
ACC	Cement	Y	178.78
CISC	Iron & Steel	Y	26.98
CHALCO	Aluminum	Y	203.07
ZIJIN MINING	Mining	Y	123.83
BBMG	Building Materials	Y	282.12
CMOC	Molybdenum	Y	116.86

Here "N" stands for "No" while "Y" stands for "Yes"

The products of materials companies are fundamental and essential for the development of a country. For example, *CMOC* produces molybdenum that is a type of rare metal and is widely used in steel production and high-tech industries. Therefore, a large proportion of these firms are state-owned enterprises and some of them are central SOEs. For the non-SOEs, SCPH (*Shandong Chenming Paper Holdings Limited*) is privatized resulting from the state's voluntarily reducing state ownership in the trend of SOE reform. Before 2015, the state owns near 60% of its shares and now the state ownership is below 50%.

The average total assets of those firms are 126.58 and is around the median of the full sample. The SOEs in general have larger assets than the non-SOEs. Those firms also exhibit preference for issuing A shares. Among all the seasoned equity offerings in the sample period, 73% are A SEO while only 27% are H SEO.

5.2.2 Capital Goods

There are thirteen companies in Capital Goods and over half of them are SOEs. Information of those firms is listed in the following table.

Table 10: Information of Companies in Capital Goods

Company	*Subject*	*SOE*	*Total Assets (in Billions RMB)*
CIMC	Marine Containers	N	172.12
NEE	Electric Development	N	0.51
GOLDWIND	Science & Technology	N	103.06
COMEC	Marine Engineering	N	52.30
ST Fortune	Machinery Electric	N	1.67
DEC	Electric	Y	89.6190
CRCC	Railway	Y	1081.24
CHINA RAILWAY	Railway	Y	1056.19
MCC	Metallurgy	Y	458.51
ZMJ	Mining Machinery	Y	29.72
SHANGHAI ELECTRIC	Electric	Y	218.52
CRRC Corporation	Railway	Y	383.57
CCCC	Communications Construction	Y	1120.40

Here "N" stands for "No" while "Y" stands for "Yes"

From Table 10, we can observe similar patterns in the Materials category though more companies are non-SOEs. The difference between SOEs and non-SOEs in terms of total assets is more obvious. There are three SOEs that have huge assets and are responsible for the railway construction while NEE is now at the stake of delisting.

The preference of A SEO is also stronger compared to material companies. 79% of the seasoned equity offerings are A SEO while 21% of them are H SEO. Only CIMC, NEE and COMEC issued H shares during the sample period.

In addition, the companies seem to have strict requirement on the proportion of A shares. The Figure 6 represents the average proportion of A shares in Materials, Capital Goods and other industries.

On average, companies in Capital Goods have higher proportion of A shares compared to other industries. Companies such as CRCC and DEC are directly managed by the central government because their products are essential to the economy and national security.

There are trade-offs between SOE reform and maintaining state ownership. In 2015, the Chinese government launched the Split Share Structure Reform in order to unlock the non-tradable shares and initiate the second stage of privatization. Liao, Liu and Wang (2014) finds that this privatization for dealing with Split-Share Structure leads to higher output and profits although operational efficiency does not increase. Figure 5 shows the median of ROE of all firms and across industries. The ROE of Materials and Capital Good companies rises above the full sample from Jan 2015 to Jan 2009, which supports findings of the previous study. Some companies in the Capital Goods also have successful stories regarding SOE reform. For instance, ZMJ was on the verge of bankruptcy during late 1990s. It then carried out a series of reforms to boost productivity and reduced state ownership from 100% to 51% with the remaining 49% given to employers in 2006. In 2018, it generated total revenue of 26

billion RMB and become one of the largest in its industry. However, for other companies whose product is closely related to social welfare and security, it would be more important to maintain the state control and it can be one of the reasons why we observe strong preference for A SEO from certain capital-goods companies.

From the investors' perspective, the shares of Capital Goods and Materials can be more appealing in mainland China. Faccio, Masulis and McConnell (2007) shows that SOEs are more likely to receive government bailouts. While foreign investors may discount the equity of SOEs regarding the political uncertainty and inefficiency resulting from divergent objectives, Chinese investors may consider the political relation as a backup for potential risk and a guarantee for being unlikely to go bankruptcy. In addition, many firms listed in Table 9 and Table 10 make considerable contributions to the local economy and known by people growing up or living in those areas. In the US setting, Hong, Kubik, and Stein (2005) find that companies in regions with lower population density usually enjoy higher stock price, which represents the risk tolerance of local investors. Feng and Seasholes (2008) find that the Chinese investors have 9% higher weight of local stocks than the market portfolio and such pattern is similar between men and women. For firms in Materials and Capital Goods, their business is more closely related to the local institutions and investors. Therefore, it would be reasonable for those firms to choose A shares.

Conclusion

The A-H premium is a price indicator that measures the relative price of A shares over H shares for the same company. This paper analyzes the role of the A-H premium for firms' financing choice for seasoned equity offerings. The results show that the A-H premium has a significantly positive impact on the probability of A share issuance. This implies that companies consider the relative price of their shares when deciding where to

launch their seasoned equity offerings. In addition, Total Assets also increases the probability of A share issuance at 99% confidence level. This finding may be surprising because previous studies show that larger firms usually have lower A-H premium. The reason may be that A SEOs require positive earnings for three years and approval from CSRC, like IPOs, while SEOs in Hong Kong are more flexible. In addition, banks, materials and capital goods companies that show preference for A shares also have large assets.

The industry effects from this study are analyzed in terms of state ownership, SOE reform and also the perspectives of different investors. While many firms succeed in the privatization and SOE reforms, certain companies in Capital Goods keep state ownership at a high level because of their significant role in the economy and national security. In addition, Materials and Capital Goods may attract investors in mainland China more than foreign investors.

The Chinese financial market is growing more and more important and an increasing number of firms are seeking to overseas, which may lead to more dual-listed firms in the future. The study of SEOs under the distinctive Chinese financial system and Hong Kong stock market can offer insights for future studies.

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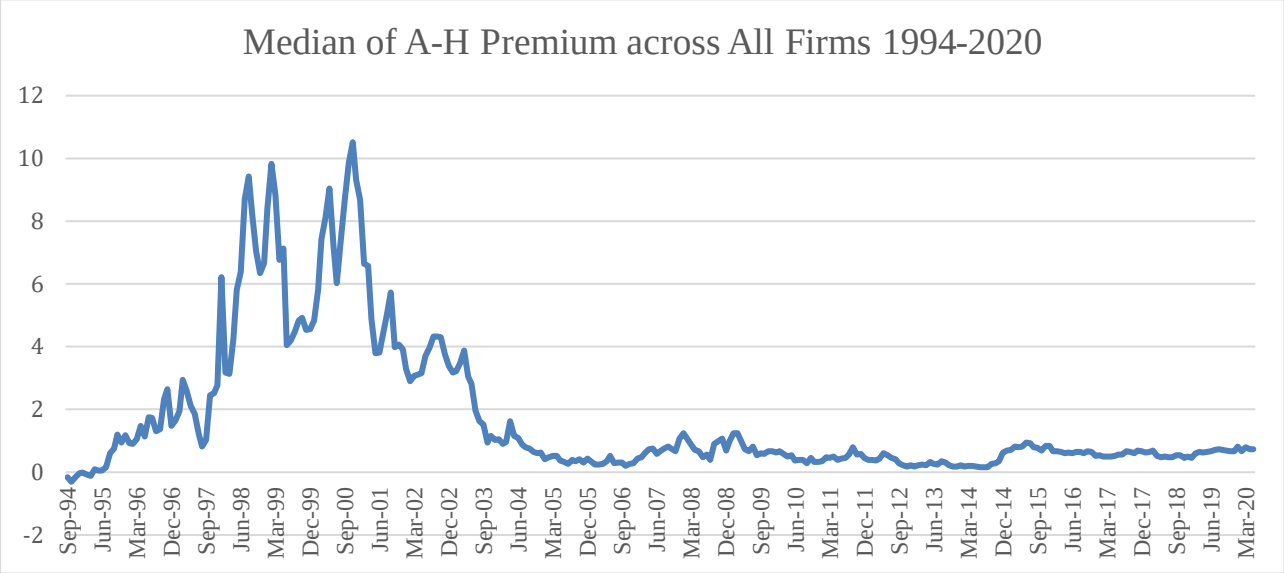
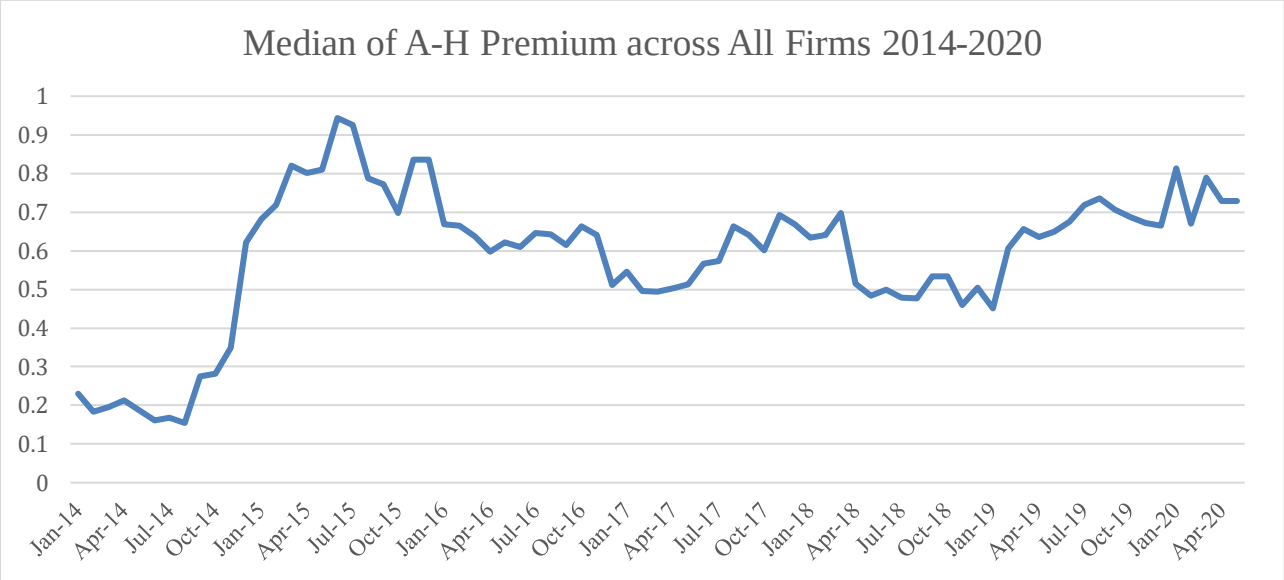
Appendix

Figure 1:



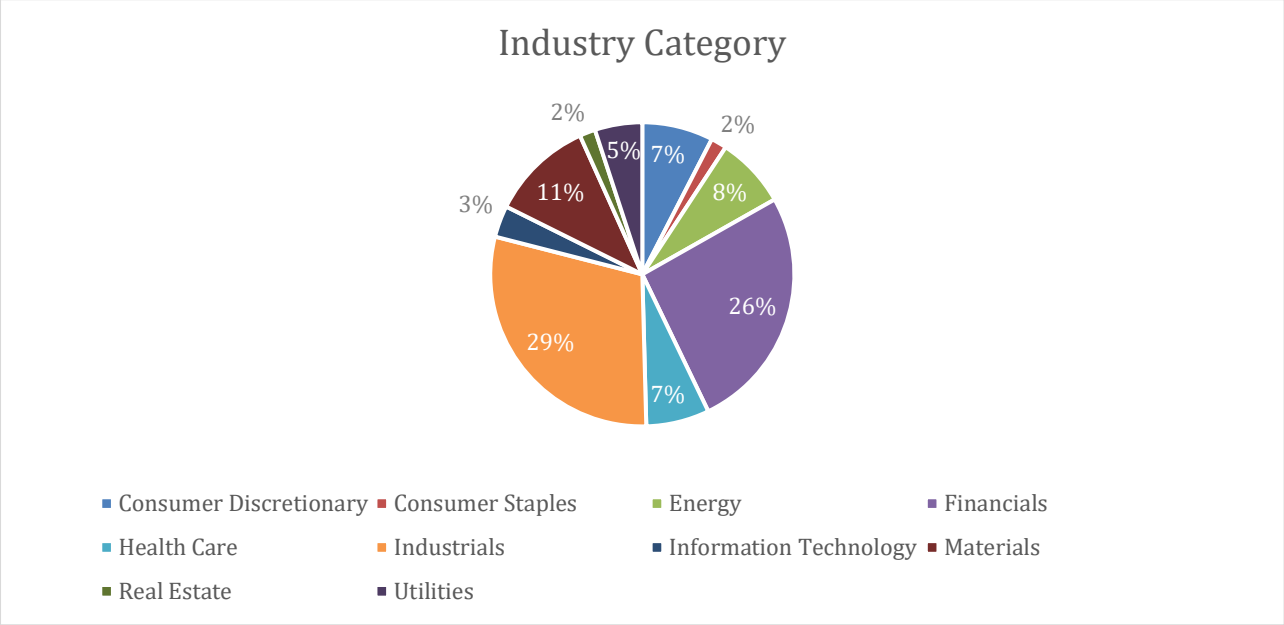


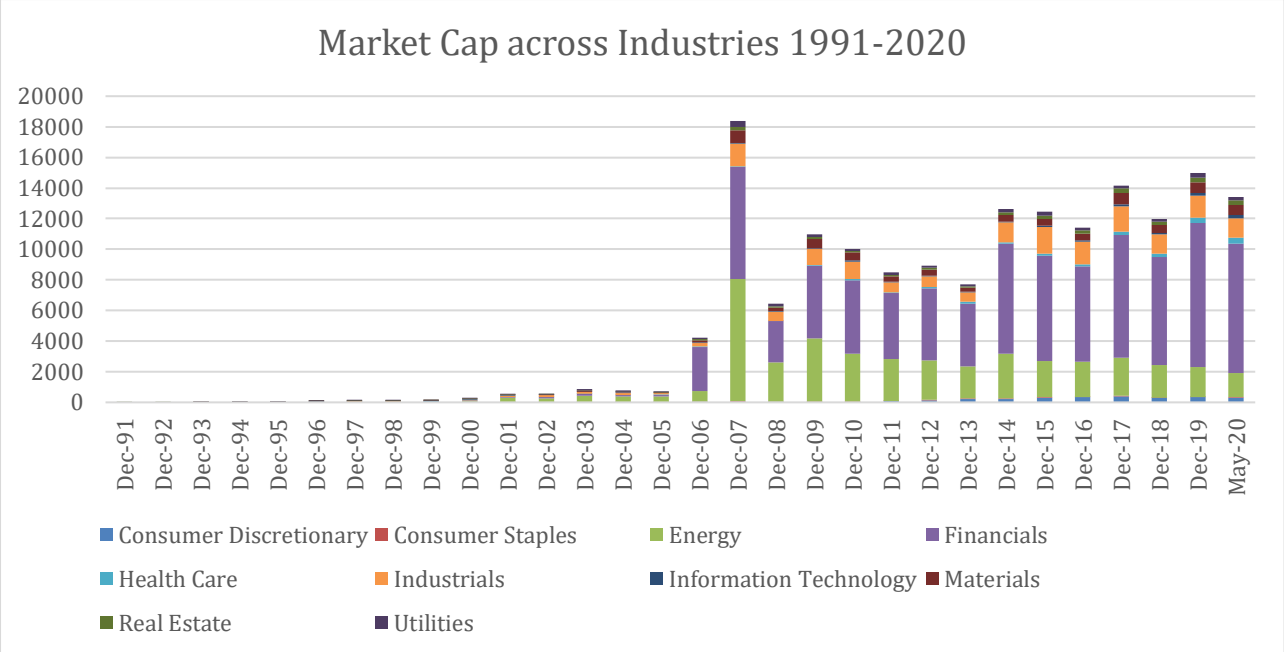
First: **Median of A-H Premium across All Firms, 1994-2020**

Second: **Median of A-H Premium across All Firms, 2014-2020**

Here, the A-H Premium in this graph is defined by A-Price/H-Price -1 and the graph is printed with monthly data.

Figure 2



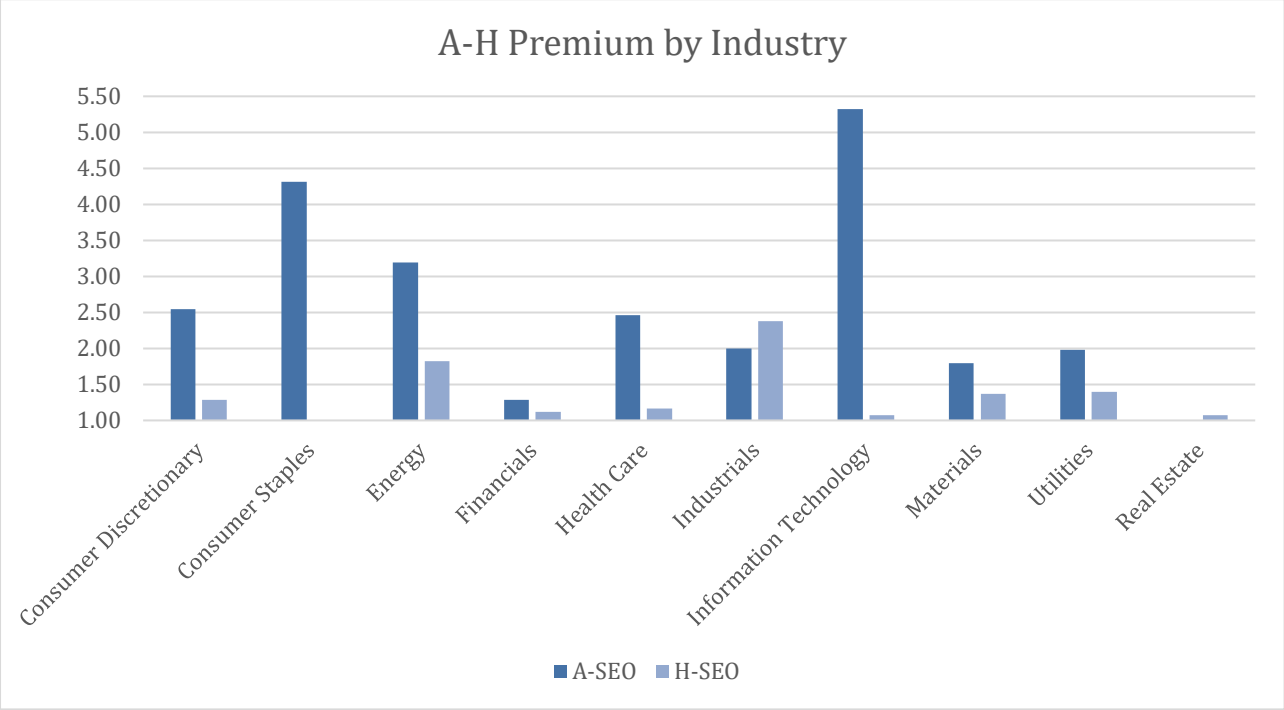


First: **The Proportion of Firms in Each Industry Category**

Second: **The Market Capitalization across Industries from 1991 to 2020**

The market capitalization is in billions RMB

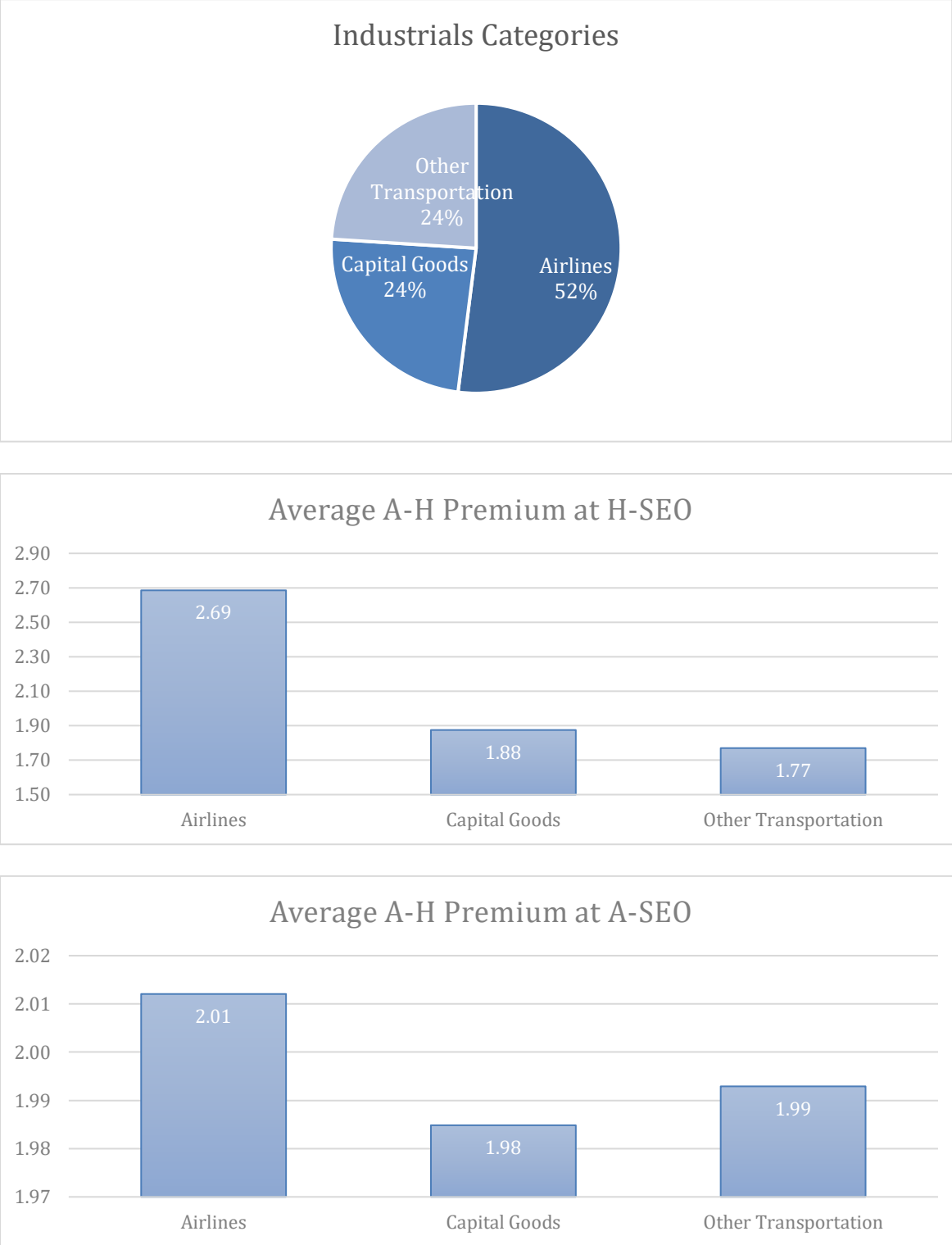
Figure 3:



Mean of A-H Premium at the Time of Seasoned Equity Offerings across Industries

Note that during the sample period, there is only one company in Consumer Staples and Real Estate launching SEO. They are Tsingtao Brewery Co., Ltd. and China Vanke Co., Ltd. In their listing period, Tsingtao Brewery only issued A shares while China Vanke only issued H shares conversely.

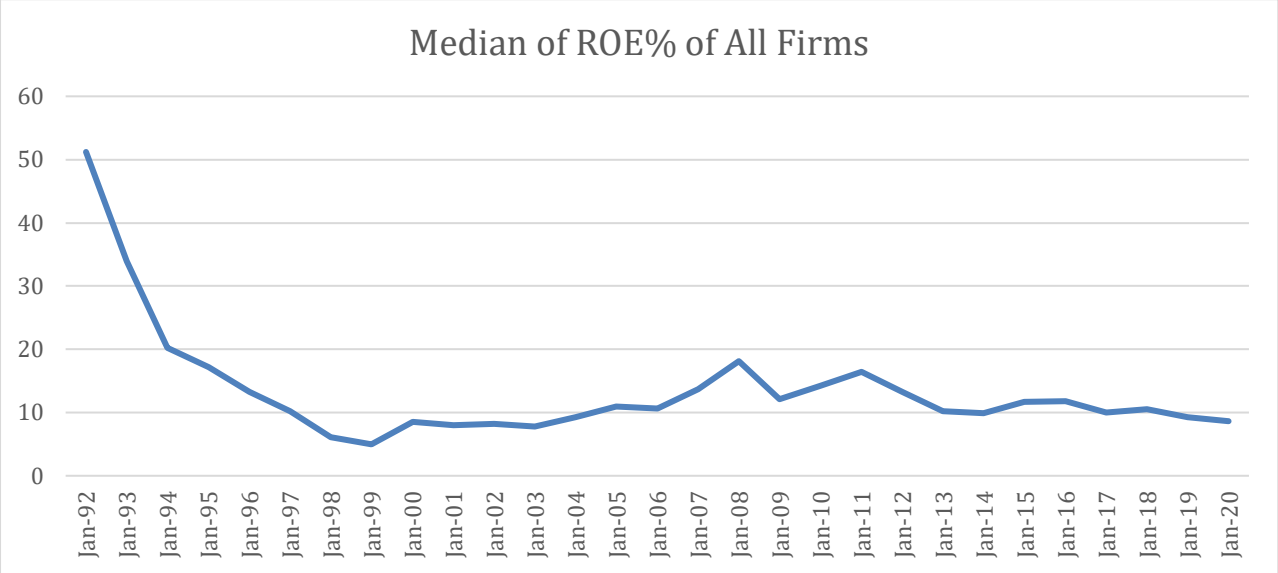
Figure 4:

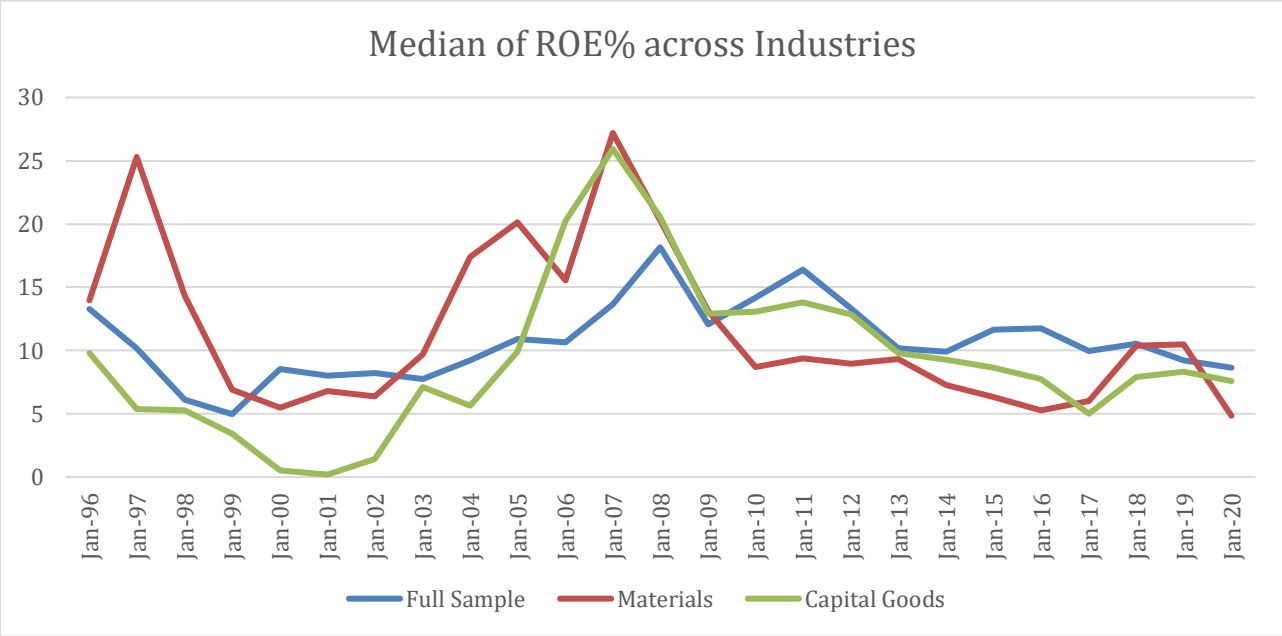


The Three Categories of Industrials Company and the mean of A-H Premium at A SEO and H-SEO across Sections

Other Transportation mainly includes companies in shipping business.

Figure 5:



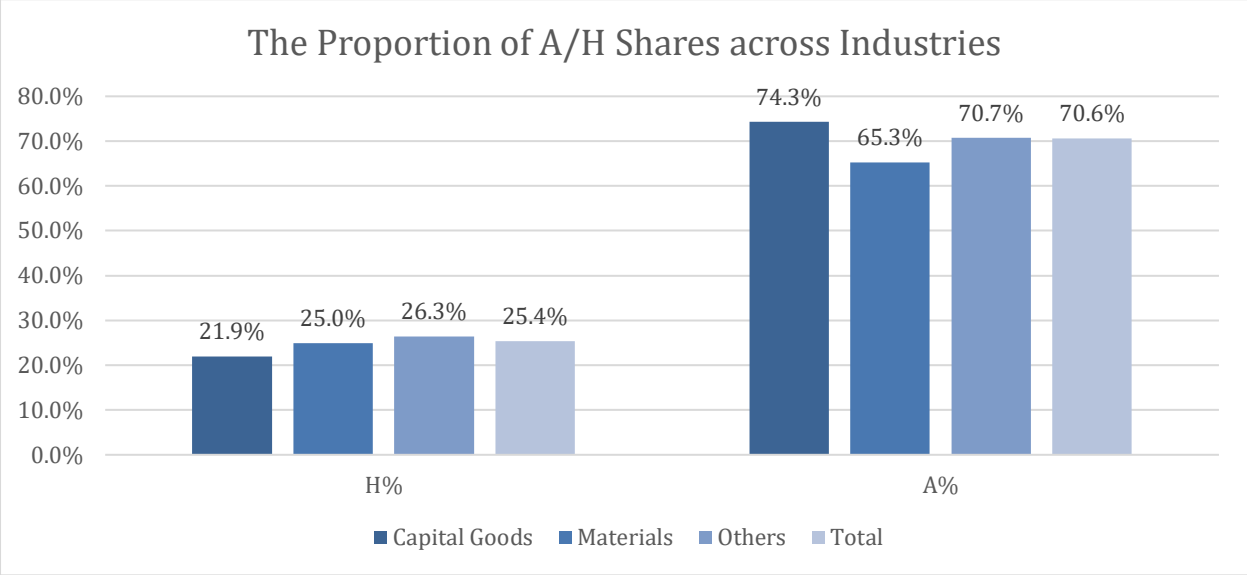


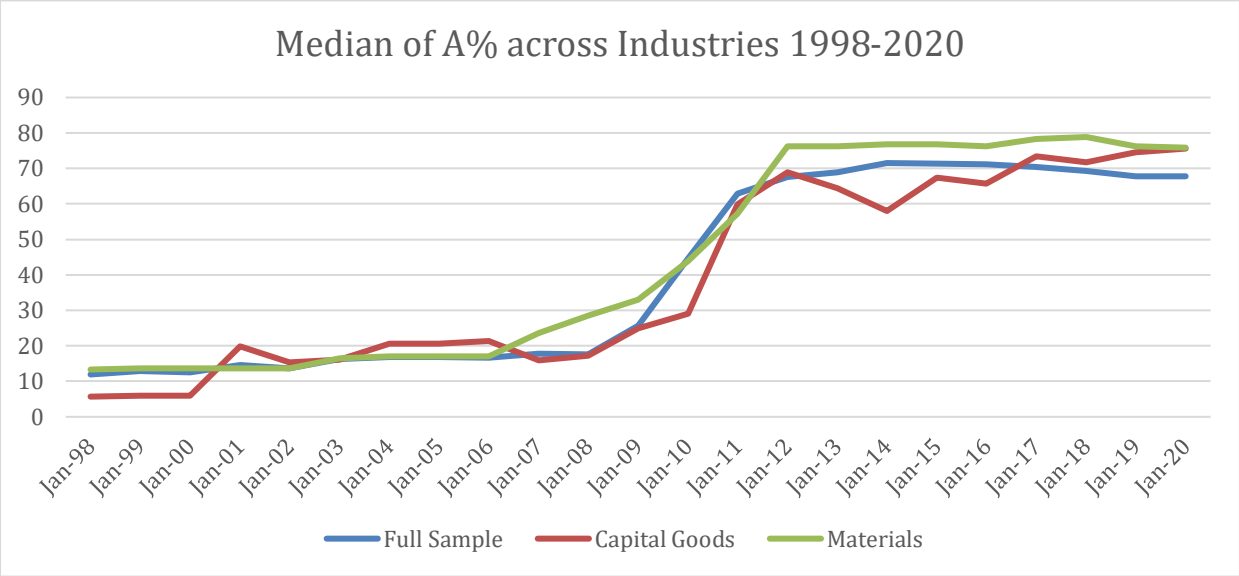
First: The Median of ROE of All Firms, 1992-2020

Second: The Median of ROE across Industries, 1996-2020

For the Materials, it has data starting from 1996 and second graph does not contain data before 1996.

Figure 6:



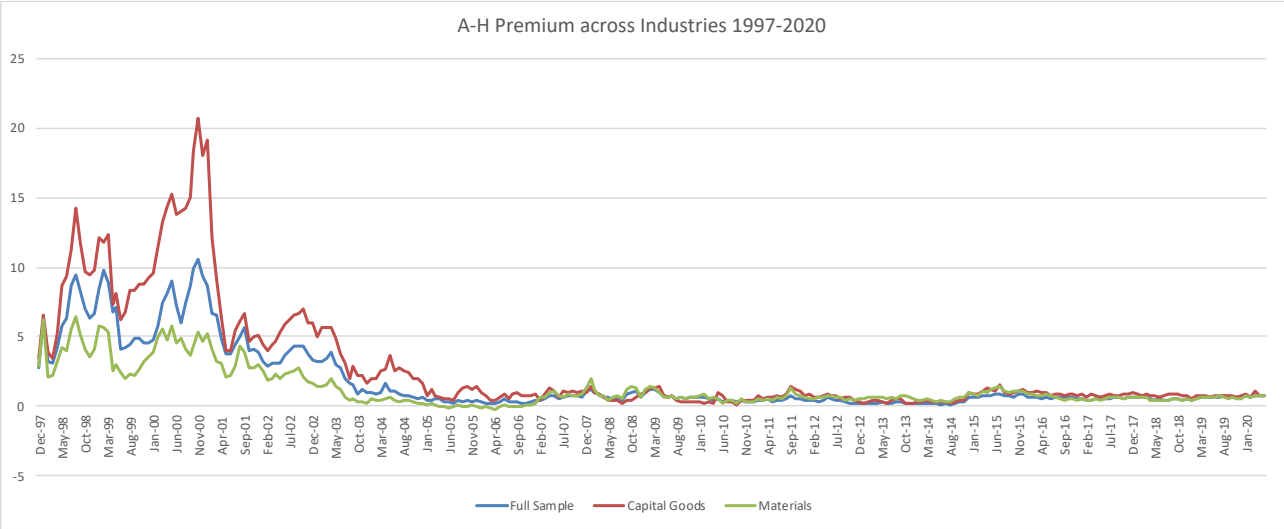


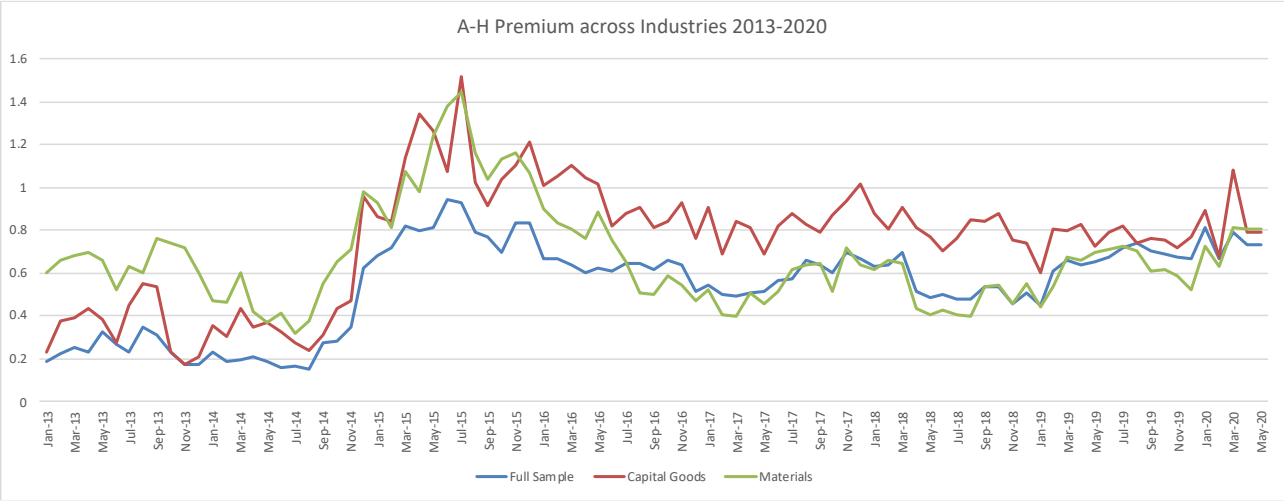
First: The Mean of the Proportion of A/H Shares across Industries

Second: The Median of A% across Industries, 1998-2020

The proportion of A/H shares means how much of the total market capitalization are tradable A/H shares. The Capital Goods and Materials consists of firms that have issued new shares during the sample period.

Figure 7:





First: Monthly A-H Premium across Industires from 1997-2020

Second: Monthly A-H Premium across Industires from 2013-2020

The Capital Goods and Materials consists of firms that have issued new shares during the sample period. Here, the A-H Premium in this graph is defined by A-Price/H-Price -1