The China Equity Valuation Premium

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Very preliminary

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Keywords: Chinese stock prices, market integration, financial development, stock valuation, speculative trading.

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The price earnings ratio has mostly been significantly higher in China than in the U.S., while most emerging markets have lower price earnings ratios. We analyze the sources of valuation differentials between comparable Chinese and US firms over the last 20 years, mostly focusing on sector level data. We explore several factors that may contribute to their cross-sector and time series variation, including financial openness, financial development, growth prospects and the investor base. We find all three channels contribute to the valuation differentials, and the most important explanatory variables are the foreign capital access, retail investors' speculative motive, state ownership, and financial development.

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I. Introduction

Being the 2nd largest economy in the world and featuring the 2nd largest equity market in terms of market capitalization, China is a unique emerging market. What makes its situation even more unique is that, despite having become very open to trade since joining the WTO in 2001, the Chinese government has only recently and cautiously embarked on a path towards liberalizing inward and outward capital flows. In contrast, most emerging markets liberalized in the late 80s or early 90s (Bekaert, Harvey and Lundblad, 2003). This integration process made valuations in emerging markets converge towards developed levels, but, on average they continued to trade at discounts. This is illustrated in Figure 1, which presents the price-earnings ratios for emerging markets, developed markets excluding U.S., the U.S. and China. The emerging market discount is clearly visible before 2009. Bekaert and Harvey (2014) ascribe the discount to factors such as political risk and illiquidity. Intriguingly, before 2009, the China A-share stocks have a much higher price-earnings ratio than the U.S., the developed market index and the emerging market index, while after 2009, the differences among the four become negligible.

Why did China stocks trade at a premium and why are there such large swings in the premium over time? This is no clear answer. Given that the stock market capitalizes growth opportunities and sets the cost of capital for public firms, understanding valuations in the world's second largest economy is of paramount importance. In this article, we set out to analyze the time series and cross-sector valuation differentials between China, and the U.S., with the latter serving as the global benchmark.

As indicated above, the globalization process may have played a role in affecting valuation differentials between China and the US. Under the assumption of economic and financial integration, Bekaert, Harvey, Lundblad and Siegel (2011, BHLS henceforth) argue that valuation

differentials across countries for the same sector should be small[1]. While it is conceivable that the Chinese government liberalization efforts have narrowed the valuation differential with the US, Figure 1 suggests a time series pattern of valuation differentials entirely inconsistent with the typical chain of events in other emerging markets. Nevertheless, we document the cross-sector and temporal evolution of international accessibility, which partially reflects globalization, of the Chinese stock market and measure its valuation effects. The Chinese government does not only set the agenda for financial openness, but has also guided the development of the stock market through various financial reforms. While large in terms of market capitalization, the Chinese stock market is not among the most well developed emerging stock markets in the world, and short-selling only became possible in 2010. We also document the evolution of stock market development and liquidity in the Chinese stock market and its valuation effects.

The inability to short sell combined with a significant presence of individual investors in stock trading can potentially lead to speculative excess and be a potential source of a Chinese valuation premium (see Mei, Scheinkman, and Xiong, 2009). The Chinese investor base is also quite different from the US investor base because of direct state ownership in many publicly traded companies. There are a variety of channels through which state ownership can affect valuations, with perhaps the most obvious one that state ownership may adversely affect corporate governance in the firm. This seems to be the dominant finding in the extant literature but mostly the sample sizes, particularly in terms of time series coverage have been quite limited (see e.g. Bai et al, 2004; Tian and Estrin, 2008). We explore the valuation effect of state ownership over a long sample period. Unfortunately, to fully characterize the investor base, we need data on institutional

[1] The BHLS study covers China over the 1993 to 2005 period. The BHLS's cross-country study, using a large set of countries and a shorter time period, did not address the question of whether Chinese firms have comparable valuations to firms priced in global capital markets.

ownership as well, which is only available from 2004 onwards. For a shorter sample, we characterize valuation effects of retail, institutional and state ownership.

Perhaps the most obvious source of a "China premium," is simply the capitalization of strong growth opportunities, not present in a mature economy such as the US. After all, China, has enjoyed double digit GDP growth for 10+ years, while the U.S., as well as other developed markets, are featuring real per capita GDP growth rates of around 2%. The large swings in valuation differentials make it unlikely that changing growth prospects are the dominant factor explaining valuation differentials with the US. Nevertheless, we explore several indicators of differential growth prospects at the sector and aggregate level to measure the valuation effect of this channel.

Empirically, we examine earnings yield differentials at the sector level between China and the U.S. over 1995 to 2015. Earnings yields are econometrically better behaved than their reciprocal, price earnings ratios, avoiding, for example, the substantial skewness characterizing price earnings ratio data. Moreover, under certain assumptions, the earnings yield can be directly linked to discount rates and expected cash flows and thus to economic and financial integration. After documenting the time-series and cross-sector properties of the earnings yield differentials between the two countries, we attribute the differences to three channels: the macro channel, the firm fundamentals channel, and the investors channel. The macro channel includes variables describing the financial openness, financial development and political risk. The firm fundamentals channel includes sector concentration ratio, leverage, earnings growth volatility and variables capturing growth expectations, such as sales growth and earnings growth rate. Finally, for the investor channel, we consider state ownership, foreign ownership, institutional holding, individual holding as well as professional activities, such as analyst forecasts.

Among the three channels, we find the macro channel explains around 6.3% of sector level variations, the firm fundamentals channel explains around 4.7%, and the investor channel explains 6.8%. Of course, the information in each channel can be correlated, because different forces in the market can be overlapping and interacting. When we put all variables together, we find all three channels to explain 15.5% of the total variation in the valuation differentials between China and the U.S. over the past 20 years. The most significant and important variables are: foreign ownership, retail investors' speculation motive, state ownership, and stock market synchronicity. It is clear to us that all three channels are at work, and the most robust variables are related to investor channel and financial market development.

The paper is organized as follows. We document the Chinese valuation premium in Section 2. In Section 3, we present the empirical results on what drives the valuation premium. Section 4 concludes.

II. The Chinese Valuation Premium

In this section, we document the Chinese valuation premium both in the aggregate, over time (starting in 1995) and in the cross-section. We also set out a simple valuation framework building on the framework in Bekaert, Harvey, Lundblad and Siegel (2011) that will be the basis for our empirical work**.**

II.1 Earnings Yields and Valuations in China

To study valuation differentials between China and the US, we use the earnings yield (EY) differential at the sector level. It is calculated as follows:

$$DIFEY_{j,t} = EY_{j,t}^{CN} - EY_{j,t}^{US} \quad (1)$$

where $DIFEY_{j,t}$ is the difference in earnings yield for sector j in quarter t between China and the US. Under the assumptions of the Gordon model (constant expected cash flow growth rates and discount rates), and full payout of earnings, the earnings yield reflects the difference between the discount rate and the expected cash flow growth rate. We further assume that systematic risk is sector rather than firm specific, and that the sector structure is sufficiently granular so that sectors are comparable across countries. Financial market integration then equalizes sector betas as well as sector risk premia across countries. Furthermore, we assume that in economically integrated countries, persistent growth opportunities are mostly sector rather than country specific or at least rapidly transmitted across countries. This is plausible as firms in the same sectors face similar production processes and market conditions, at least under the null of free competition and lack of trade barriers. It then follows that the process of market integration should cause valuation differentials between industrial sectors in different countries to converge. Bekaert, Harvey, Lundblad and Siegel (2011, 2013) build on this intuition to create bilateral valuation differentials that serve as a country segmentation measure, which is essentially the value-weighted sum of absolute differentials in Equation (1). The China-US situation is quite far from a fully integrated world. Figure 1 implicitly already demonstrates significant variation in the aggregate valuation differentials between China and the U.S.

To compute sector level earnings yield, we start from the firm level earnings yield (EY), defined as,

$$EY_{i,j,t} = \frac{Total\ annualized\ net\ income_{i,j.t}}{Price_{i,j,t} \times Number\ of\ common\ equity_{i,j.t}},$$

where $Price_{i,j,t}$ is the unadjusted price of stock i in sector j at the end of quarter t; *Number of common equity*$_{i,j,t}$ is the latest reported number of common equity in firm's quarterly or annual

report; and *Total annualized net income*$_{i,j,t}$ is the sum of net income reported in quarter *t*-4 to quarter *t-1*. The earnings yield variable is simply the reciprocal of the popular price-earnings (PE) ratio.

For each sector, we define the EY ratio for sector *j* in quarter *t* as

$$EY_{j,t} = \frac{\sum_{i=1}^{N_j} Total\ annualized\ net\ income_{i,j,t}}{\sum_{i=1}^{N_j} Price_{i,j,t} \times Number\ of\ common\ equity_{i,j,t}},$$

where N_j is the number of stocks in sector j. Similarly, we can define the market aggregate EY as

$$EY_t = \frac{\sum_{i=1}^{N} Total\ annualized\ net\ income_{i,j,t}}{\sum_{i=1}^{N} Price_{i,j,t} \times Number\ of\ common\ equity_{i,j,t}},$$

where N is the number of stocks in each country. We define firm level PE ratio, sector level PE ratio and aggregate market level PE as the reciprocals of firm level EY, sector level EY and market EY, respectively.

II.2 Data

Our main sample period is 1995-2015. Appendix Table 1 provides a detailed description of our data sources and computations. Instead of using readily available index level data, which might be subject to the dataset's selection biases, we directly retrieve data at the firm level, and then aggregate to the required portfolio level, mostly sectors.

Firm level data for Chinese firms, listed as A stocks, are obtained from CSMAR, DataStream and WIND. From CSMAR, we collect basic firm level info, such as accounting information, as well as share structures for ownership purposes. In China, there are some cases where some stocks are required to suspend trading, for example before major corporate events,

such as a merger. For these days, CSMAR does not provide any trading information, thus we have missing values for returns, closing prices, and market value. We set returns for these suspension days to zero, with closing prices and market value the same as those on the last day before the stock was suspended.

Before 2002, Chinese firms were only required to disclose their earnings on a semiannual basis. In order to have a sample of quarterly data which goes back as far as possible, we apply the following method to retrieve quarterly earnings from the corporate reports for the early years of our sample, as well as for the missing reports. For the years before 2002, we assume that the earnings in the first and second quarter of the year are one half of the earnings reported in the semi-annual reports. The earnings for the third and fourth quarter are one half of the total earnings generated in the second half of the year, which is the difference between the earnings reported in the firm annual reports and that in the semi-annual reports. This method is applicable for Chinese firms because, unlike firms in the US, Chinese firms report an accumulated net income in their quarterly reports within each year, thus we can retrieve the missing net income for a given quarter if we have the earnings reported for the quarter before and the quarter after.

Firm level data for U.S. firms are obtained from CRSP, Compustat and Datastream. From CRSP and Compustat, we collect basic firm level information regarding stock trading and accounting variables.

Although China and US have different accounting standards, we believe they are quite comparable for the majority of our sample period, with the possible exception of the earlier years from 1995 to 1997. Since 1998, the Ministry of Finance in China has released and executed several accounting guidelines, making its accounting system incorporate international accounting standards. On February 15, 2006, the Ministry of Finance in China published new Accounting

Standards and Auditing Standards System, to be implemented on January 1, 2007. These new standards indicate the convergence of the Chinese accounting system toward international standards.

In this article, we group firms into sectors using Level 4 sector classifications obtained from Datastream. Altogether, China and the U.S. share 33 common sectors out of 38 total sectors. There are 5 sectors that China doesn't have enough number of firms to form a comparable sector with the U.S., such as REITs and Tobacco.

In addition to the 33 common sectors, to explore variations in the dimension of state ownership, international accessibility, and liquidity, we also form market level portfolios by sorting firms based on the state ownership, international accessibility and liquidity measures. For example, we form 4 state ownership portfolios, based on quarterly firm-level state ownership: 0%, 0-10%, 10%-50% and >50%. After the 4 portfolios are formed, within each portfolio, we recalculate all the portfolio-level variables for China, as the weighted sum of the corresponding sector-level variables, using the market share of the sector in the portfolio as weights, or use the weighted average of the corresponding firm-level variables, using the lagged firm market value as weights.

To compute the valuation difference between a corresponding U.S. portfolio, we match each China portfolio with a US portfolio benchmark, which has the same sector composition. For example, for each portfolio in China, the portfolio EY is calculated as $EY_t^{CN} = \sum_i VW_{i,j,t}^{CN} EY_{i,j,t}^{CN}$, which is the weighted average of EY of every firm i that belongs to this portfolio. Then for each sector j, we sum up the weights and get the sector-level weight $VW_{j,t}^{CN} = \sum_i VW_{i,j,t}^{CN}$. For the next step, we use the sector level weight to form the US benchmark as $EY_t^{US} = \sum_j VW_{j,t}^{CN} EY_{j,t}^{US}$. We

carry out this procedure for all the variables for the benchmark US portfolios. More details on construction of the international accessibility and liquidity portfolio are discussed in Appendix A3.

Given the popularity of the PE ratio, we present summary statistics for both sector level PE's and EY's in Table 1. Table 1 reports the time-series average of the number of stocks, the market value in millions of US dollars, and in relative percent, the PE ratio and EY in each sector/portfolio, and the market for China and the US, from 1995 to 2015.

First of all, we find that China and US have very different sector structures. In China, the sector with the largest share is "Banks and life insurance", representing almost 13% of the total market capitalization. The "Oil and Gas" sector and the "Real Estate Investment and Services" represent more than 7% of the market on average. In the US, "Technology Hardware & Equipment", "Pharmaceuticals &Biotechnology" and "Banks & Life Insurance" all represent more than 7% of the total market. For most sectors, China has fewer firms than the US, except for "Automobiles and Parts", "Chemicals", "Industrial Metals and Mining", and "Real Estate Investment and Services". In general, China sectors are smaller in absolute size than the corresponding US sectors, except for "Industrial Metals and Mining", "Life insurance", and "Mining". As for PE ratios, China sectors have higher PE ratios in most industries than US, except for "Forestry & Paper" and "Mining".

For the 4 portfolios sorted by state ownership, interestingly, high state ownership indicates lower valuation. When the state is the major shareholder, the PE ratio is 26.33, while when state has zero ownership, the PE ratio is 29.72. For the firms with more international accessibility, such as B shares, H shares or ADRs, their PEs are not very different from firms without the accessibility to the global capital markets. Between firms with high liquidity (low zero measures) and low liquidity, high liquidity means higher PE ratio by 2.4.

At the bottom of Table 1, we present the market aggregate statistics. For the China, the aggregate PE ratio is 27.4, with corresponding earnings yield of 4.8%, while the U.S. aggregate PE ratio is 19.3, with earnings yield at 5.4%. In Figure 2 Panel A, we plot the market aggregate PE ratios for both U.S. and China. Over the past 20 years, the China PE ratio is significantly higher than that of the U.S., and the two time-series converge after 2008. We plot the aggregate earnings yields for China and the US in Figure 2 Panel B. The earnings yield deficit for China is mostly present until about 2010 after which it turns in a premium, with more erectly near convergence between the two countries. For most sectors, China has lower earnings yield than US. Throughout the years, industries such as "Banks", "Constructions & Materials", "Industrial Transportation", and "Real Estate Investment Service", have generated higher earnings yield than corresponding US industries. During 2006 to 2010, none of the China industries have higher earning yield than US. However, 10 of 36 industries in China have higher earning yield than US industries, which brings up the China market earnings yield after the year 2010. Overall, Table 1 and Figure 2 show the valuation premium at both aggregate and sector level.

Given the relatively high PE ratios, one would expect earnings yield in China to be generally lower than in the US, but Table 1 shows that there are some Chinese industries with higher average PE ratios, yet higher earnings yields than their US counterparts (and for "Forestry and Paper" the reverse is true). This is possible because of the usual convexity effect: the average earnings yield is approximately one over the average PE ratio plus a positive function of the variance of the PE ratio. The variably of PE ratios (and earnings yield differentials) is much larger in China than in the US. This convexity effect makes the valuation puzzle smaller in earnings yield terms than in PE ratio terms.

Our main discussion is based on sectors. The sector perspective allows the testing of another potential reason for the valuation puzzle at the aggregate level. It is conceivable that China's sectoral structure is focused on high PE ratio industries. For example, countries such as Finland and Israel have relatively high PE ratios because of their sectoral composition tilts towards respectively, the telecommunication and technology sectors, which tend to be relatively high PE ratio sectors. Our discussion above and Table 1 already dismiss this explanation, as the PE ratio advantage is almost universally true for all sectors and China's most important sectors ("Banks and Life Insurance", "Oil and Gas" and "Real Estate Investment and Services") are relatively low PE sectors.

While it is unlikely that sectoral composition explains the puzzle, it is still interesting to quantify its role. Consider the following decomposition of the earnings yield differential between China and the US,

$$Diff\_EY_t = EY_t^{CN} - EY_t^{US} = \sum_{j=1}^{N} w_{j,t}^{CN}\left(EY_{j,t}^{CN} - EY_{j,t}^{US}\right) + \sum_{j=1}^{N}\left(w_{j,t}^{CN} - w_{j,t}^{US}\right)EY_{j,t}^{US}.$$

The first component is the valuation differential, and the second purely is due to a different sectoral composition. We can apply the decomposition to the sample averages or period by period. The results are reported Table 2 Panel A. If we simply look the sample averages, the earnings yield differential at market level has a time-series average of -0.0014, of which the first component has an average of -0.0087 and the second component is 0.0073. By computing the decomposition period by period, we can do a variance decomposition and compute how much each component contributes to the total variance of the overall differential. We find that at the market-level, the first component accounts for 104% of the variation of total earnings yield differentials, while the second component contributes to -4%.

Given these results, the focus should be squarely on the differences between the earnings yields for different sectors in China versus the US. Table 2 Panel A reveals another justification for a sectoral perspective: there is a large dispersion in earnings yield differentials across sectors, ranging from -4% for "Automobiles & Parts" to 1.2% for "Household Goods & Home Construction". To contrast the differential effect of aggregate versus sector specific differences, we ran a simple panel regression on the earnings yield differentials with sector fixed effects and time dummies. The total R^2 is 18%, indicating that sector fixed effect can explain a sizable part of the differences in valuation differentials. The sector fixed effects range from 1.3% for "Household Goods & Home Construction" to -4.0% for "Automobiles & Parts". The R^2 is reduced to 11% when only time dummies are included, and reduced to 7% when only industry fixed effects are allowed. It seems that both time and industry are important.

The earnings yield differentials also show intricate dynamics over time further suggesting that a sectoral perspective may provide insights on what factors drive the valuation differential. To illustrate this, Table 2 Panel B reports the sector rankings and earnings yield differentials between China and US sectors for four subperiods. While for most sectors, China has lower earnings yield than US throughout the years, for the 2011 to 2015 period, 10 of 33 sectors in China have higher earnings yield than the corresponding US sectors, which brings down the China market PE ratio after the year 2010. More importantly, there are some important changes in the relative ranking of industries in terms of their valuation differentials, which may be attributable to changes in their openness, liquidity, state ownership etc.

I. Hypotheses and Methodology

To understand what drives the time-series and cross-sector variation in the valuation ratios, we estimate the following specification:

$$DIFEY_{j,t} = a + b'Z_{j,t} + c'Control_{j,t} + u_{j,t},$$

This is a panel regression, and the coefficients are estimated using sector level quarterly data. Variable $Z_{j,t}$ represent our explanatory variables to test various hypotheses, and $Control_{j,t}$ are control variables that are always in the regression.

BHLS discuss a dynamic pricing framework which reveals several biases in their segmentation measure, even under the null of full market integration. The first potential problem is country or sector-specific differences in financial leverage. If an industry is more levered in China than in the US, its higher financial risk should correspond to higher discount rates even under the null of integration. We therefore compute leverage differentials at the sectoral level as the first control variable. Second, in a dynamic world the volatility of earnings growth rates and discount rates will be priced. Even if such volatility is not forecastable, an industry with higher (idiosyncratic) earnings volatility may, all else equal, be more valuable than an industry with less volatility (see also Pastor and Veronesi, 2006). The second control variable is therefore the earnings growth volatility differential. Finally, the number of firms in a particular industry should affect the accuracy of the measure. In BHLS, when absolute values were taken, a low number of firms would invariably increase the noisiness and thus the level of the differential. For our measure, this is not naturally the case. In fact, because of the skewed nature of the PE ratio, it is more likely than a low number of firms may lead to relatively high PE ratios (and thus low earnings yields) and given that China almost invariably has the lower number of firms, the sign of the coefficients may be positive rather than negative. We include the minimum number of firms in the computation as our third control variable.

The leverage data are first collected at firm level and then aggregated to the sector level. Leverage is defined to be the total debt over total assets. The sector level net income is calculated by adding up firm-level net NI with setting negative NI to zero. The NI of each sector in quarter t is annualized by summing up sector-level NI from quarter t-4 to quarter t-1. The sector real NI growth is calculated as $\log\left(\frac{NI_t * CPI_{t-4}}{NI_{t-4} * CPI_t}\right)$. We calculate the volatility of sector NI growth each quarter by calculating the standard deviation of the log growth rate over the past twenty quarters. The minimum number of stocks is the natural logarithm of the minimum number of stocks in each sector of China and US. More details on the variables construction is discussed in Appendix A1. Summary statistics for the control variables are reported in Panel C of Table 2. Interestingly, the Chinese's firm leverage is much higher at 50.4%, than the U.S. firms average leverage at 26.3%. The net income volatility measures is much higher at 32.5% for Chinese firms, than average U.S. firms with volatility at 24.8%.

We use pooled ordinary least squares (OLS) to estimate the panel coefficients. Following the methodology in Thompson (2006) and Petersen (2009), we correct the standard errors for unspecified serial correlation within a given sector and for cross-sector correlation in a given quarter, by double clustering on sector and quarter.

In what follows, we consider several groups of explanatory variables, $Z_{j,t}$. Our first group focuses on macro or market level variables, which include financial openness, stock market development and political risks in China, as well as business conditions in the global capital markets. Our second group of variables is related to firm level fundamentals, such as sales growth, earnings growth, and competition. Finally, we consider the investors, by examining state ownership, institutional ownership, foreign ownership, as well as speculative motive.

III. Determinants of Earnings Yield Differentials between China and the US

Here we report our main empirical results. Section III.1 briefly sketches the history of the Chinese stock markets and describes two variables of regulatory reforms that we extract from this history. In Section III.2, we focus on determinants at market aggregate level. In Section III.3, we focus on variables that are associated with firm level fundamentals, such as growth prospects and competition. In Section III.4 we focus on the spectrum of ownership. The various sections also describe the evolution in the underlying variables which is interesting in their own right. Section III.5 pools all determinants together, and we select the most significant determinants. focusses on growth prospects. The final section, Section III.6 includes additional data from 2004 onwards.

III.1 A Brief History of Chinese Stock Market Regulations

Over the past 20+ years, Chinese government has made many regulation changes, pushing for a more developed capital market. We list all major regulation events in the Appendix Table A.1. Here we describe four major regulations changes in details: the Qualified Foreign Institutional Investor (henceforth QFII) program, the Split-share reform, the Qualified Domestic Institutional Investor (QDII) program, and Shanghai-Hong Kong Stock Connect.

On Nov 5, 2002, People's Bank of China (PBOC) and China Securities Regulatory Commission (CSRC) jointed published "Temporary Regulation on Domestic Securities Investment by Qualified Foreign Institutional Investor", indicating the official start of QFII. The QFII program was one of the first efforts to internationalize the RMB, representing China's effort to allow, on a selective basis, global institutional investors to invest in its RMB denominated capital market. Once licensed, foreign investors are permitted to buy RMB-denominated "A shares"

in China's mainland Shanghai and Shenzen stock exchanges. Thus foreign investors benefit from an opportunity to invest onshore, which is otherwise often insulated from the rest of the world, and subject to capital controls governing the movement of assets in-and-out of the country. By the end of 2015, there are 294 licensed foreign institutional investors based on the disclosure of CSRC.

In 2005, the split-share reform was introduced during the transition of China's economy from a regulation-oriented economy into a market-oriented economy. Before the reform, there are tradable and non-tradable shares, such as state-owned shares and legal person shares. They had different holding costs and were classified by whether they can be traded, but both types had the same dividend rights and voting rights. The reform mainly transformed non-tradable shares into shares tradable by the public investors, which can promote market-oriented incentive and supervisory mechanisms, and helps protects the right of shareholders of tradable shares. By the end of 2007, the reform was basically complete.

On June 20, 2007, CSRC published "Administration of Overseas Securities Investment by Qualified Domestic Institutional Investors (QDII) (Trial)", indicating the official start of domestic institutions' participation in global capital markets. The QDII program is related to the capital market set up to allow domestic financial institutions to invest in offshore markets such as securities and bonds. Similar to QFII, it is a transitional arrangement which provides limited opportunities for domestic investors to access foreign markets at a stage where a country's currency is not traded or floated completely freely and where capital is not able to move completely freely in and out of the country. This program introduces some freedom to domestic capital for institutional investors.

On November 2014, Shanghai-Hong Kong Stock Connect was launched to open a cross-boundary investment channel that connects Shanghai Stock Exchange and the Hong Kong Stock

Exchange. This scheme allows Hong Kong and international investors to purchase eligible Shanghai-listed shares through their local broker eligible, and investors in Mainland China to purchase eligible shares listed on the Hong Kong Stock Exchange as well. Only A shares listed in Shanghai will be included in the initial stage. Furthermore, stocks listed in Shenzhen Stock Exchange cannot be traded in Shanghai Stock Exchange, so during the initial stage, stocks listed in Shenzhen have no additional channel to be connected to Hong Kong. In terms of investor eligibility, all Hong Kong and overseas investors will be allowed to trade eligible shares listed in Shanghai. However, only Mainland institutional investors and individual investors who have RMB500,000 in their investment and cash accounts are eligible to trade Hong Kong-listed shares.

Based on the major events listed in Table A1, we define two regulation variables: the regulation on openness variable, and the regulation on development variable. For the regulation on openness variable, we construct it as a cumulative dummy variable: it takes the value of 0 from 1995Q1 to 2000Q4, the value of 1 from 2001Q1 to 2002Q3 (Bshares), the value of 1.5 from 2002Q4 to 2003Q2 (the announcement of QFII), the value of 2 from 2003Q3 to 2006Q1 (the first transaction by QFII), the value of 2.5 in 2006Q2 (the announcement of QDII), the value of 3 from 2006Q3 to 2011Q3 (market execution of QDII), the value of 4 from 2011Q4 to 2014Q1 (the announcement and market execution of RQDII), the value of 4.67 from 2014Q2 to 2014Q3 (the announcement and regulation execution of Shanghai-Hong Kong Connect), and the value of 5 from 2014Q4 to 2015Q5 (the official start of Shanghai-Hong Kong Connect).

For the regulation on development variable, it takes the value of 0 from 1995Q1 to 2005Q1, the value of 1 from 2005Q2 to 2008Q3 (the Split-share Reform), the value of 1.5 from 2008Q4 to 2009Q4 (the announcement of the Margin Trading and Short-selling Program), the value of 2 from 2010Q4 to 2015Q4 (the official start of the Margin Trading and Short-selling Program).

III.2 The Macro Channel

Given the large quantity of available market level data, we categorize the macro variables into 3 subcategories: financial openness, financial development, and political risk. Summary statistics for each subcategory are reported in Panel A of Table 3.

We include 4 variables to proxy for financial openness. Our "trade" variable is computed as the sum of total export and total import over the past four quarters over the sum of nominal GDP over the past four quarters. The data is obtained from IMF, International Financial Statistics and US Bureau of the Census. This variable has been used in BHLS as a de facto measure of trade openness, and they suggest that with globalization, the increased goods trade openness can serve as a good candidate factor to explain the downward trend of market segmentations around the world. Hence we would expect trade openness is helpful in terms of explaining valuation differentials. The second financial openness variable is "real interest differentials", calculated as the difference between the real interest rate between China and US. For the nominal interest rate in China, we use the 1-year institution and individual deposit rate, obtained from People's Bank of China. For US, we use the 1-year Treasury constant maturity Rate from FRED Economic Data. Real interest is calculated by subtracting nominal interest rate by inflation. More details are provided in the Appendix Table A2. We expect a fully open economy would have similar interest rate as that of the U.S. Next, we compute a market-level international accessibility (IA) variable, which is the market share of A stocks which have either B share, H share or ADR listed in the total A share market capitalization. Data on Chinese firms are obtained from CSMAR and WIND. For all U.S. firms, their international accessibility is set 1 because they have access to the largest global capital market. Finally, we include the regulation on openness variable.

For financial development subcategory, we first include regulation on development variable, the GDP growth, the number of firms, and a Z-score for market capitalization. If a country is well developed, we expect to see high liquidity and low idiosyncratic volatility. For liquidity, we compute turnover, and zero return days. For idiosyncratic volatilities, we directly compute idiosyncratic volatility and market synchronicity measures, as in Morck, Yeung and Yu (2000). More details on individual measures are reported in Appendix Table A.2.

For the political risk, we rely on ICRG data for various dimensions of political risk. We include "overall political rating", "quality of institutions", and "investment profile".

From Table 3 Panel A, trade is a much bigger part of GDP in China than in U.S. The difference is as high as 25.53%, and it is highly significant. The real interest rate difference is not significant. For the international accessibility variable, 37.13% of Chinese firms have some type of access to the global capital markets. It may not be surprising to find that the GDP growth is averaged at 9.59% in China, and 2.48% in the U.S. In terms of firm number, U.S. has many more publically-traded firms. For liquidity and volatility measures, Chinese stock market on average has significantly lower liquidity and higher return synchronicity, which is typical for emerging markets. All above properties are consistent with the fact that China is an emerging market.

Panel B of Table 3 reports the panel regression of the *Diff_EY* on the macro variables. Instead of using the macro variables from both countries, to save space and be parsimonious, we only use the differences between the two countries as independent variables. We present 16 regressions, the first 4 includes financial openness variables, the next 8 include financial development variables, the next 3 include political risk variables, and the last one include all variables. From one by one regressions, none of the coefficients is statistically significant. In the last regression, we put all variables together, except the "trade" variable, which is highly correlated

with GDP growth, the "regulation development" variable, which is highly correlated with international accessibility variable, and the "number of firms" variable, which is highly correlated with "regulation on openness" variable. For the remaining 13 variables, we find that the international accessibility, the regulation on openness, the GDP growth, the zeros, the trading synchronicity, and the political rating variables are statistically significant. For instance, the international accessibility variable is significant and positive. Given that the earnings yield difference between China and U.S. is typically negative, a positive coefficient indicates that high international accessibility leads to smaller differences in earnings yield. The coefficient on GDP growth is negative and significant, indicating higher GDP growth differences lead to bigger differences in valuations.

In terms of the control variables, the leverage variable is always positive and significant. Given that Chinese firms normally have higher leverages than U.S. firms, the positive coefficient indicates that higher leverage leads to more positive differences in the earnings yield.

From the adjusted R2 at the bottom, most of the macro variables only explain a small part of the valuation differentials, and the adjusted R2s are mostly 1%. When we include all the variables in regression 16, differences in all macro variables can account for 6.3% of the sector valuation differences.

III.3 Firm Fundamentals

Can sector level fundamental information explain the sector level valuation difference? We consider the following fundamental variables, market concentration, sales growth, and net income growth. We compute market concentration by adding up the market share of the top four largest firms (in terms of market capitalization) within the sector. The higher the market concentration,

the lower the competition. We directly obtain firm level sales and net income measures from CSMAR and Compustat. As mentioned earlier, we first collect firm level information, and then aggregate firm fundamentals to sector level by taking the value-weighted average of all firms within each sector, using the firms' last quarter market capitalization as weights.

Summary statistics for the fundamental variables are presented in Table 4 Panel A. The market concentration variable is about the same across two countries, with the top 4 firms' market cap is 48.5% in China, and 51.9% in U.S. For sales growth, the China average is at 11.3%, and the U.S. average is 5.1%, consistent with what we observed for GDP growth. The net income growth averages are more similar across two countries, around 5.1% and 7.4%, respectively. But this is not because firms have similar earnings growth from two countries. Instead, most of the Chinese firms have higher positive net income growth than U.S. firms, but there are sectors with large negative net income growth, such as "Alternative Energy" and "Fixed and Mobile Telecom".

For find out which of the above sector level variables attribute to the valuation differentials, we report the regression results in Panel B of Table 4. The first 4 regressions include the fundamental variables one by one, and the last regression includes all variables. For the last regression with all variables, the earnings growth is highly significantly and positive. Given that Chinese firms normally have higher earnings growth than U.S. firms in most of the sectors, the positive coefficient indicates that higher earnings growth leads to more positive differences in the earnings yield.

In terms of adjusted R2, sales growth by itself can explain 2.8% of sector differentials, but it is not significant by itself. When we put all fundamental variables together, the adjusted R2 is 4.7%, smaller than that of the macro variables in Table 3.

III.4 Investors: State, Institutions and Foreign Investors

In the capital markets, there are many types of investors, with different goals and resources, and their impact on the valuation can be quite different. In this section, we first overview various type of ownership, and the share structure for Chinse firms.

We start with the state ownership. Chinese government is a strong player in the stock market, in the sense that they control IPO approval, design development strategy for the whole economy, and they impose various regulations and restrictions, including the interest rates and the currency rates. Before the start of China's reform for Household Contract Responsibility System in the late 1970s, almost all enterprises were mostly owned by the State. The State-owned economy persisted for more than a decade. In the late 1980s, China stock markets were set up in order to restructure State-owned enterprises (SOEs) by opening the capital markets. The diversification of ownership for listed companies would inevitably occur with public listings. Throughout the years, China has adopted a fairly complicated shares structure, which is the result of an attempt to organize stock markets where the dominance of the State-owned economy can be maintained and the loss of State-owned assets prevented. In 2005, the split share structure reform was introduced. Before the reform, the A-shares were divided into tradable and non-tradable shares based on their tradability at stock exchanges; the latter were mainly State-owned shares. By the end of 2004, the non-tradable shares accounted for 64% of the total shares in Chinese capital market (among which the State owned 74%). The non-tradable shares can be further broken down into State-owned shares and other legal person shares. In August 2005, the reform was expanded to all listed firms. By the end of 2007, the reform was complete for companies representing over 97% of total Chinese A-share market capitalization. This split share reform decreased the State-ownership and further diversified the ownership structure of Chinese firms.

In China, shares are classified into different categories according to ownership, rather than whether they are common stock or preferred stock. Based on Chinese firms' annual reports, all shareholders except for preferred stockholders have the same per-share claim over firms' earnings, thus all shares except for preferred stocks are classified as common equity. In addition to A-share stocks, there are other types of shares in the share structure of Chinese firms, such as B-shares and H-shares. B-shares are foreign shares that are listed domestically in China. The face value of all B-shares is denominated in RMB, but these shares are quoted and traded in foreign currencies. Since 1992, B-shares have been issued and traded on both the Shanghai and Shenzhen Stock Exchanges. On the Shanghai Stock Exchange, B-shares are quoted and traded in U.S. dollars, while on the Shenzhen Stock Exchange, they are quoted and traded in HK dollars. B-shares allow Chinese companies to raise foreign currency from both Chinese and overseas investors, and the B-share market was China's first step in internationalizing its securities markets. Citizens in mainland China were also permitted to invest in B shares after February 2001. H-shares, contrary to A-shares, represent the shares of publicly traded Chinese companies listed on the Hong Kong Stock Exchange. H-shares are issued in China under Chinese law and are subject to the Hong Kong Stock Exchange's listing requirements. H-shares of Chinese companies listed on the Hong Kong Stock Exchange are quoted and traded with a face value of Hong Kong dollars. H-shares also are open for trading for all investors, while A-shares can only be traded by Chinese domestic investors and Qualified Foreign Institutional Investors (QFII). We obtain the prices of B shares from CSMAR and calculate an A-B price premium, as a measure of excess speculation in Chinese A shares, following the methodology in Mei, Scheinkman, and Xiong (2009).

In addition to B-shares and H-shares, some Chinese firms also have American Depositary Receipts (ADRs) listed in the US. ADRs are considered as part of common shares for Chinese

firms, after being converted to the number of common shares by the ADR ratio. We obtain the list of all ADRs listed in US from Datastream and use the ADR parent code in Datastream to find their parent firms listed in China. We only keep ADRs with corresponding Chinese parent firms with A shares listed. The market capitalization of ADRs are obtained from Datastream.

We calculate state ownership as the proportion of shares specified as state owned in CSMAR to the total number of shares. Based on our calculation of state ownership, the average state ownership of the whole market has been around 40% from 1995 to the beginning of 2009. Since 2009, state ownership has dropped significantly from the previous 40% to around 10% since 2010. By the end of 2015, state ownership only represents 3% of all shares of companies listed in A stock markets.

Other than the government, there are also institutional investors and retail investors. The general belief is that institutional investors are more informed and sophisticated investors, while retail investors are mostly noise traders who can be speculative. The institutional ownership data is not complete and only starts in 2004, which we discuss in Section III.6. To measure retail investors' speculative motive, we compute the A-B premium and A-H premium. The A-B premium is calculated as the price of A share divided by the price of B share minus 1, and the A-H premium is calculated as the price of A share divided by the price of H share minus 1. High premium means high speculation motives.

Finally, we consider foreign ownership based on market cap of B, H and ADR shares. We compute three foreign ownership variables. The first foreign ownership variable is calculated by adding up three dummy variables, B share indicator, H share indicator and ADR indicator. All the indicator variables take value 1 if the firm has B, or H, or ADR shares. Therefore, the maximum and minimum value of this foreign ownership is 3 and 0, respectively. For the second foreign

ownership variable, we compute the ratio of market capitalization of B shares, H shares and ADR to firm total market capitalization. The third foreign ownership variable is computed as the market share of firms with positive firm-level foreign ownership within the sector.

Table 5 Panel A reports summary statistics on various ownership variables in China. We don't report these number for U.S. because we set value of zero for U.S. firms on these variables. The average state ownership is 32.4%, which high concentration of state ownership in "Electricity", "Oil and Gas" and "Industrial Metals and Mining". For speculations related to retail investors, the average of A-B premium is 1.779%, and the average of A-H premium is 2.259%, with the highest A-B premium in "Software and Computer Services" and the highest A-H premium in "Electronic and Electrical Equipment". For the foreign ownership variables, the average of the three variables are 58.7%, 10.0% and 37.0% respectively, with more foreign ownership in "Oil and Gas", and "Banks and Insurance".

We report the panel regression results in Panel B of Table 5. The first 6 regressions report results by individual ownership variables, while the last regression include all variables. Unlike the results in Table 3 and Table 4, all individual variables are statistically significant, indicating the strong explanatory power of ownership variables. The coefficient on state ownership is significantly negative, indicating high state ownership actually leads to larger valuation differentials. The coefficients on A-B premium and A-H premium are both significantly negative, implying high speculation is associated with larger valuation differentials. All three foreign ownership variables are significantly positive, suggesting more foreign ownership actually decreases the valuation differentials. Because the 3 foreign ownership variables are highly correlated, we only keep the second one with the highest t-statistic in the final regression. When

we put all variables together, state ownership and foreign ownership variable 2 both stay highly significant.

In terms of adjusted R2, the foreign ownership variable 2 by itself (with the control variables) can explain 5.2% of the cross-sector valuation differentials. In the last regression, when we put in all variables, the adjusted R2 is 6.8%, which is not substantially higher than 5.2%. This indicates that different ownership variables might convey overlapping information. Compared with the macro variables and fundamental variables, the ownership variables have the highest explanatory power.

III.5 Multivariate Analysis: Selection of Important Determinants

In this subsection, our goal is to find a set of important factors that could account for the valuation differentials between China and US. In order to obtain a parsimonious set of factors, we employ the general-to-specific search algorithm of Hendry (1995) and Hendry and Krolzig (2001), implemented in PcGets. This algorithm eliminates insignificant variables through a "testing-down" process and generates a final set of variables with the most significant coefficients. The purpose is to obtain the most significant variables, without losing explanatory power overall.

Here is the procedure how PcGets works. In the first step, we estimate a model with all variables. We rank the p-values of all coefficients in the all-variable model from largest to smallest, then we test joint significance of expanding list of coefficient estimates from largest p-value (least significant) to smallest p-value (most significant) using a F-test. If F-test is not rejected, we remove the variables on the current list. We repeat this procedure till all remaining coefficients are individually significant. Detailed steps are provided in Appendix Table A3.

In Table 6, we provide final selection of variables from PcGets, which include 7 variables other than the intercept. First of all, from unreported results, we know that if we include all variables, the adjusted R2 is 15.5% with 19 variables. Now with 7 variables, the adjusted R2 is 9.2%, indicating our selection procedure preserve most of the explanatory power. Second, out of the 7 variables, based on the t-statistics and the variance explained, the most important and significant variables are: foreign ownership, A-H premium, state ownership, and synchronicity, which indicates that firm ownership structure and market development are the most important driving force of the valuation differentials. This doesn't necessarily mean that firm fundamental information is unimportant for valuations, instead, it is possible that the relevant information from firm fundamentals are also contained in ownership and market development measures.

After we take away all the cross section and cross time differences, it is interesting to see that the intercept is still -5.5%, indicating that there is a stable component of China valuation premium in the data that can't be explained by our variables.

III.6 Additional Data after 2004: Analyst and Institutional Ownership Data

Both professional analysts and institutional investors are active and important players in the global capital markets. However, both variables are only available after 2004. In this section, we examine whether these variables are important for explaining valuation differentials over the subsample of 2004-2015.

The analyst data is obtained from I/B/E/S. For each firm in China and US, we calculate forecast errors, number of analysts following the stock, and forecast dispersion. The forecast error, SUE, is computed as the difference between the actual earnings and the average EPS forecast, scaled by the standard deviation of the analyst forecast on EPS. The analyst forecast dispersion

(DISP) is calculated as the standard deviation of reported EPS forecast for Fiscal year 1 (forecast period indictor, FPI=1), standardized by the absolute value of average forecast for a given firm in each quarter. We then take the value-weighted forecast dispersion across all firms in each sector to obtain the sector-level measure.

The institutional ownership data is from Factset Lion Shares. We calculate institutional ownership for all firms, following the methodology in Ferreira, Miguel and Matos (2008). For Chinese firms, institutional ownership (IO) is calculated as the maximum of 13f reported holdings and non-adjusted fund holdings over total shares outstanding. For US firms, IO is calculated as the aggregate of 13f holdings and non-13f fund holding, divided by total shares outstanding. Factset also provides data on domestic and foreign institutional ownership.

Panel A of Table 7 presents the summary statistics of the new data items. There are two significant difference between Chinese firms and U.S. firms. First, for most Chinese sectors, there are fewer analysts. The market average of analyst following is 3 for Chinese firms, and 21 for U.S. firms. Interesting, the analyst dispersion magnitude is similar for the two countries, with Chinese analysts have slight higher dispersion. Second, the institutional ownership in U.S. is on average 74.2%, while in China it is mostly around 6.2%. This pattern can be either caused by the higher state ownership or higher retail ownership, or it is caused by limited data coverage. Between foreign or domestic institutional ownership, both countries have more domestic institutional investors than foreign ones.

In Table 7 Panel B, we report the panel regression results using the additional data. The first 6 regressions include the new variables one by one. Interestingly, only one of the new variables, SUE, has a significant positive coefficient. This implies that larger unexpected growth differential leads to larger differentials in valuations. The last regression reports PcGets results on

all variables available between 2004 and 2015. From results over 1995-2015, we know A-B premium and foreign ownership variables are both important. Both variables maintain their significance in this subsample. For this later sample period, state ownership variable doesn't show up to be significant, potentially because most of the Chinese firms went through the stock split-share reform and state ownership significantly decreases. Interestingly, the interest rate, the GDP growth, and the SUE variable all contributes higher than 10% of total explanatory power of all variables. The overall adjusted R2 is 42.4%, much higher than the 10% in Table 6. One likely reason is that the valuation differentials decreases after 2008, and become easier to explain.

III. Conclusion

We study valuation differentials in China and U.S. over the past 20 years at sector level. We first document that for up to 2009, the average price earnings ratio is significantly higher in China than in U.S., or most of the other emerging markets. We call this pattern as the valuation premium effect. Next we hypothesize that the differentials can come from macro, fundamentals, and investor channels. Using sector level data, we find all three channels contribute to the valuation differentials, and the most important explanatory variables are ownership variables.

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Figure 1 Time-series of PE ratios for Datastream indices, 1995Q1 to 2015Q4

This figure plots the time-series of Price/Earnings ratios (PE) for Datastream market indices of Emerging markets, Developed markets excluding United States, US, and China A shares. The data for these four indexes can be obtained from Datastream using the following data series: TOTMKEK, TOTMKEF, TOTMKUS, and TOTMKCA, which have 2302, 3508, 999, and 400 constituents, respectively. Of the 2302 constituents in Emerging Market index, it includes 50 China H shares, but no China A shares. Datastream calculates its market index PE by dividing total market value by the total earnings, thus providing an earnings-weighted average of the PE ratios of the constituents.

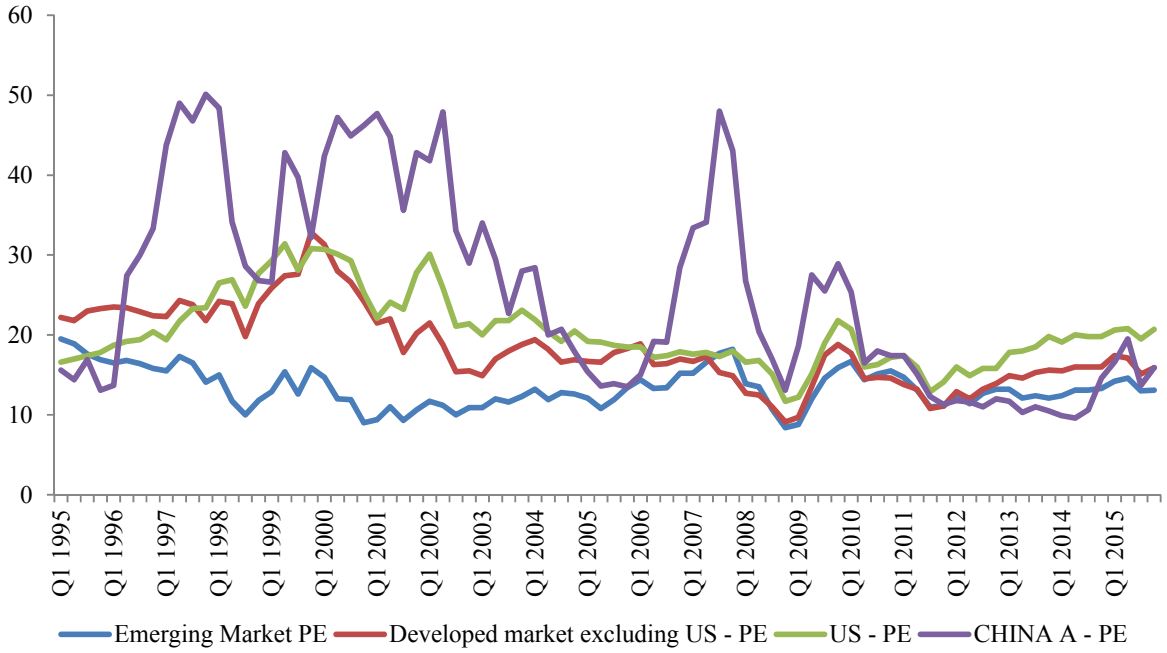
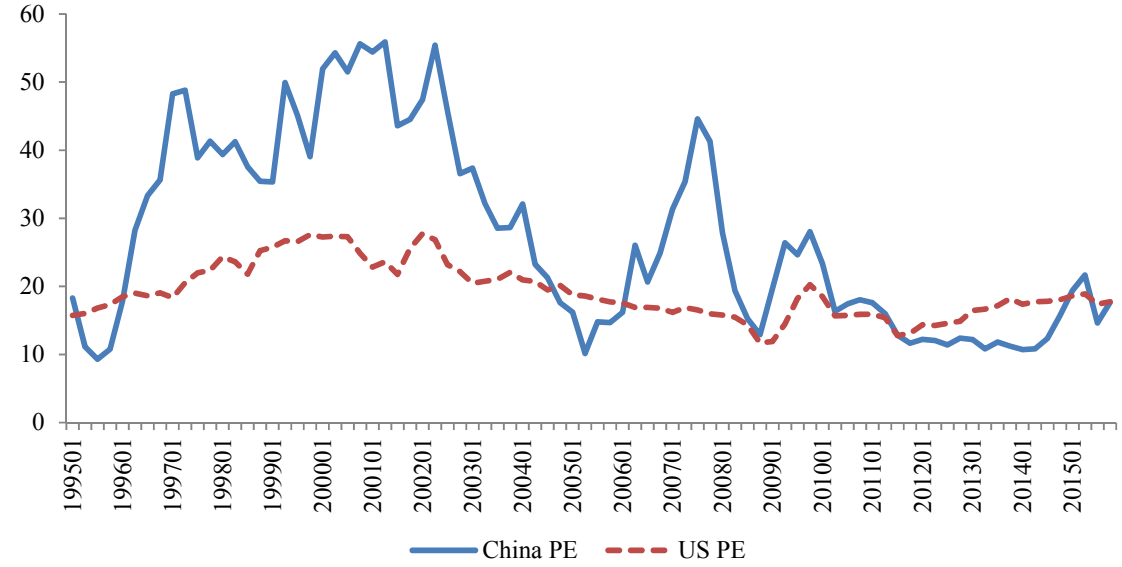


Figure 2 Time-series of EY of China A shares and US in our sample, 1995Q1 to 2015Q4

This figure plots the time-series of earnings yield (EY) for China A shares and US firms in our sample, from 1995 to 2015. We calculated firm-level earnings at quarter t as the trailing annualized net income by summing up net income from quarter t-5 to quarter t-1. Negative values of firm earnings are set as zero before being aggregated into sector or market level. Total market value is calculated as the summation of all the stocks' price multiplied by common shares outstanding at the end of each quarter. EY, earnings yield, is total earnings divided by total market value.

Panel A. Price-earnings Ratio



Panel B. Earnings yields

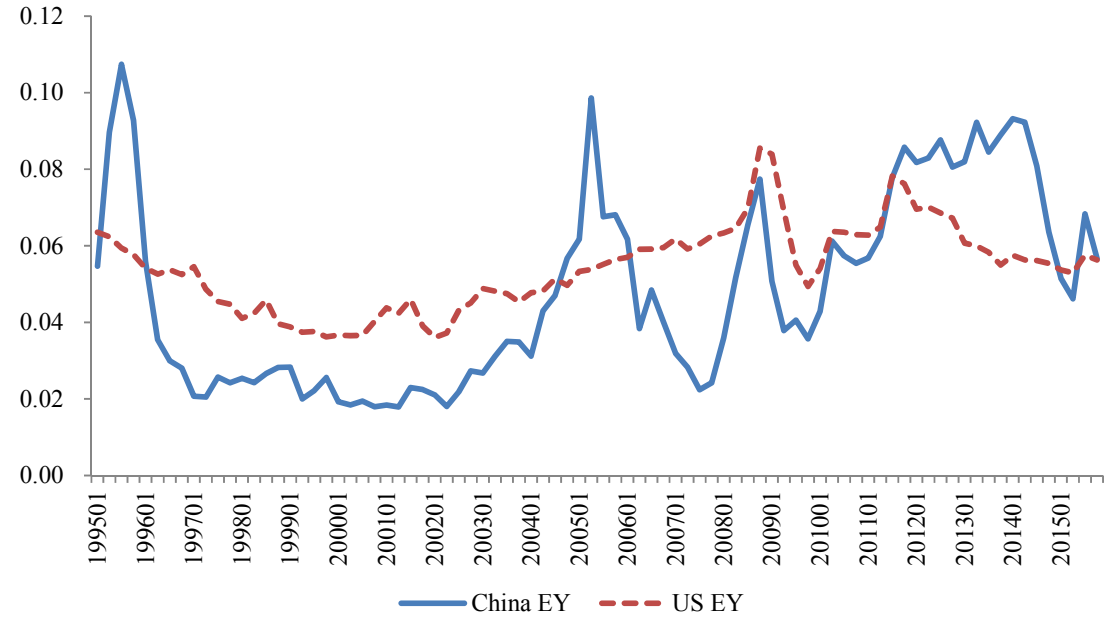


Table 1 Summary statistics by sectors for China and US, 1995Q1-2015Q4

This table reports the time-series average of number of stocks, market value in million US dollars, sector market share in total market (%), PE ratio and earnings yield in each sector/portfolio and for the market of China and US, from 1995Q1 to 2015Q4. All these variables are constructed on a quarterly basis for each sector and the whole market. We calculated earnings at quarter t as the trailing annualized net income by summing up net income from quarter t-5 to quarter t-1. We only include China A shares in our sample. In each quarter, for both sector- and market-level calculations, MV, market value for common equities in million US dollars, is calculated as the sum of all stocks' price multiplied by common shares outstanding, converted to US dollars using the quarter-end exchange rate. For both China and US, PE ratio is market value for common equity divided by total net income. EY, earnings yield, is total earnings divided by market value for common equity. Negative values of firm earnings are set to zero before being aggregated into sector or market level. The summary statistics of the sectors in US but not in China are also reported. In addition to the industrial sectors, we construct 8 additional portfolios based on state ownership, international accessibility and illiquidity. The detailed description of the portfolio formations is in Appendix Section A3. The last row of this table reports the time-series summary statistics of the market in China and US. The market includes all the sectors (not portfolios) listed in the table.

	China					US (Benchmark)				
Sector/Portfolio	n(stocks)	MV ($ million)	Sector MV (%)	PE	EY	n(stocks)	MV ($ million)	Sector MV (%)	PE	EY
Aerospace & Defense	6	8,996.5	0.37	65.21	0.019	65	249,767.4	1.62	18.93	0.057
Alternative Energy	6	6,842.5	0.22	68.74	0.022	12	7,246.7	0.04	53.19	0.036
Automobiles & Parts	55	59,378.7	3.48	29.58	0.046	47	117,462.5	0.87	18.45	0.086
Banks & Life Insurance	9	441,424.7	12.77	24.42	0.070	592	1,167,637.0	7.96	14.73	0.071
Beverages	25	45,466.9	2.46	34.04	0.035	24	280,792.0	1.96	23.51	0.046
Chemicals	117	83,852.7	6.12	37.61	0.034	89	245,192.7	1.68	18.67	0.059
Construction & Materials	72	76,662.3	3.44	33.95	0.042	91	107,676.9	0.69	19.02	0.059
Electricity	43	65,143.3	4.97	23.08	0.053	60	321,888.0	2.21	15.60	0.067
Electronic & Electrical Equipment	96	75,652.4	3.65	45.70	0.025	225	163,080.5	1.15	25.25	0.046
Financial Services	14	53,063.6	1.85	48.27	0.030	155	621,217.4	4.02	15.77	0.066
Fixed and Mobile Telecom	3	10,249.0	0.64	49.69	0.057	68	487,872.6	3.57	24.01	0.049
Food & Drug Retailers	8	3,876.8	0.27	46.96	0.028	44	197,173.8	1.30	22.39	0.048
Food Producers	55	42,861.9	2.44	40.69	0.062	91	259,397.1	1.77	18.59	0.056
Forestry & Paper	18	8,229.6	0.52	36.77	0.036	22	34,221.8	0.27	40.77	0.053
Gas, Water and Multiutilities	14	11,010.0	0.77	40.02	0.030	55	126,097.7	0.87	17.42	0.059
General Industrials	17	13,703.3	1.06	27.83	0.042	52	455,997.5	3.09	22.15	0.050
General Retailers	65	40,152.5	3.14	37.38	0.031	236	779,507.2	5.13	22.52	0.047
Health Care Equipment & Services	8	6,390.2	0.18	88.48	0.021	295	509,199.4	3.32	23.49	0.046
Household Goods & Home Construction	27	24,749.7	1.54	24.11	0.069	113	259,430.2	1.74	18.34	0.056
Industrial Engineering	101	97,235.7	4.70	37.67	0.034	144	204,773.5	1.35	17.11	0.064
Industrial Metals & Mining	67	101,307.4	6.06	49.63	0.043	43	92,269.8	0.62	19.21	0.068
Industrial Transportation	41	69,057.2	4.08	27.19	0.045	74	190,841.8	1.24	17.69	0.058
Leisure Goods	19	16,226.6	1.78	44.29	0.032	57	63,889.6	0.45	24.67	0.044
Media	14	16,159.2	0.62	62.93	0.020	147	507,451.9	3.33	24.69	0.056
Mining	30	81,361.2	3.05	29.91	0.046	37	42,821.8	0.31	33.04	0.036
Oil Equipment, Services & Oil and Gas Producers	11	176,741.8	7.22	38.69	0.059	191	942,589.8	6.16	17.18	0.066
Personal Goods	56	33,466.9	1.97	34.57	0.033	97	188,585.5	1.28	20.57	0.051
Pharmaceuticals & Biotechnology	91	78,892.2	4.00	38.76	0.029	262	1,097,762.0	7.34	26.54	0.041
Real Estate Investment & Services	112	87,181.4	7.51	36.58	0.040	32	16,520.0	0.10	32.78	0.041

Software & Computer Services	34	29,641.6	1.15	67.17	0.019	313	1,001,637.0	6.46	28.62	0.041
Support Services	28	18,345.6	1.46	42.85	0.030	245	265,840.9	1.81	24.93	0.042
Technology Hardware & Equipment	50	43,202.6	2.69	43.58	0.026	327	1,127,887.0	7.35	31.98	0.042
Travel & Leisure	31	39,194.9	2.50	46.61	0.031	182	301,292.2	1.91	20.75	0.050
Portfolios										
State-own Portfolio 1 (SO=0)	684	1,109,822.8	34.85	29.72	0.044	174	462,849.5	2.95	19.98	0.054
State-own Portfolio 2 (0<SO<=10%)	101	216,115.6	7.52	29.88	0.047	222	552,733.2	3.69	17.09	0.061
State-own Portfolio 3 (10%<SO<=50%)	323	275,684.4	20.18	32.55	0.045	152	391,308.7	2.56	19.93	0.054
State-own Portfolio 4 (SO>50%)	228	394,143.8	37.36	26.33	0.049	149	407,001.4	2.68	18.31	0.059
International Accessibility Portfolio 1 (IA1=0)	1218	1,136,216.2	62.37	29.89	0.040	139	380,573.3	2.52	19.84	0.053
International Accessibility Portfolio 2 (IA1>0)	119	859,550.2	37.54	28.57	0.059	199	552,388.0	3.37	17.23	0.063
Illiquidity Portfolio 1 (Zeros<=Country Zeros Median)	796	1,117,125.6	56.98	29.23	0.042	84	393,596.7	2.53	19.46	0.055
Illiquidity Portfolio 2 (Zeros>Country Zeros Median)	540	878,640.8	42.93	26.85	0.055	89	56,159.3	0.33	18.06	0.060
Market	1337	1,963,042.4	-	27.43	0.048	4597	13,100,226.2	-	19.32	0.054

Table 2. Summary Statistics by Sector, quarterly valuation difference (DIFEY), 1995-2015

This table reports the summary statistics of earnings yield differentials, change in ranks of the earnings yield differentials over time, and the time-series summary statistics of sector-level decomposition of earning yield differentials. This sample is constructed by requiring firms to have available data of price, shares, net income and other accounting variables associated with calculating leverage, as well as market cap from last quarter. Panel A reports the time-series average and standard deviation of sector-level decomposition in DIFEY between China and US. For each sector i, $Diff\_VAL = VW_i^{CN}\left(EY_i^{CN} - EY_i^{US}\right)$ and $Diff\_STRUC = \left(VW_i^{CN} - VW_i^{US}\right)EY_i^{US}$, using the sector market cap from last quarter as weight. In Panel B, for each of the 33 sectors in our sample, we report the time-series average and standard deviation of the quarterly sector valuation difference (DIFEY). DIFEY is the China-US sector valuation differentials. EY, earnings yield, is total earnings divided by total market value. We use sector EY in each country as the country sector valuation. We also report the average DIFEY in 1995-2000, 2001-2005, 2006-2010 and 2011-2015 respectively, indicating the relative change in sector valuation difference over time for each sector as well as a sector's DIFEY ranks during the above four subperiods. A rank of one indicates the highest level of segmentation and valuation difference. Panel C presents summary statistics of the control variables.

Panel A. Decomposition of earning yield differentials

Sector	DIFEY Mean	Diff_VAL Mean	Diff_STRUC Mean	DIFEY StdDev	Diff_VAL StdDev	Diff_STRUC StdDev	Variance Decomposition	
							Cov(Diff_VAL,diff_EY) /Var(DIFEY)	Cov(Diff_STRUC,diff_EY) /Var(DIFEY)
Aerospace & Defense	-0.0010	-0.0001	-0.0009	0.0005	0.0001	0.0004	0.11	0.89
Alternative Energy	0.0000	0.0000	0.0001	0.0000	0.0001	0.0001	-0.20	1.20
Automobiles & Parts	0.0005	-0.0015	0.0021	0.0012	0.0021	0.0015	1.35	-0.35
Banks & Life Insurance	0.0064	0.0039	0.0025	0.0170	0.0094	0.0096	0.49	0.51
Beverages	-0.0002	-0.0003	0.0001	0.0004	0.0005	0.0004	0.79	0.21
Chemicals	0.0010	-0.0016	0.0026	0.0015	0.0017	0.0018	0.46	0.54
Construction & Materials	0.0011	-0.0005	0.0016	0.0012	0.0017	0.0009	1.12	-0.12
Electricity	0.0008	-0.0008	0.0017	0.0016	0.0014	0.0014	0.48	0.52
Electronic & Electrical Equipment	0.0003	-0.0008	0.0010	0.0004	0.0006	0.0006	0.43	0.57
Financial Services	-0.0024	-0.0005	-0.0018	0.0008	0.0004	0.0007	0.25	0.75
Fixed and Mobile Telecom	-0.0014	0.0001	-0.0015	0.0010	0.0004	0.0008	0.21	0.79
Food & Drug Retailers	-0.0006	-0.0001	-0.0006	0.0002	0.0000	0.0002	-0.02	1.02
Food Producers	0.0005	0.0003	0.0002	0.0054	0.0054	0.0006	1.00	0.00
Forestry & Paper	0.0000	-0.0001	0.0001	0.0002	0.0002	0.0002	0.43	0.57
Gas, Water and Multiutilities	-0.0004	-0.0003	-0.0001	0.0002	0.0002	0.0003	0.04	0.96
General Industrials	-0.0013	-0.0001	-0.0012	0.0006	0.0002	0.0005	0.16	0.84
General Retailers	-0.0018	-0.0005	-0.0013	0.0012	0.0004	0.0012	0.05	0.95
Health Care Equipment & Services	-0.0018	0.0000	-0.0018	0.0007	0.0000	0.0007	0.01	0.99
Household Goods & Home Construction	0.0002	0.0004	-0.0003	0.0034	0.0032	0.0005	0.94	0.06
Industrial Engineering	0.0006	-0.0015	0.0020	0.0006	0.0010	0.0009	0.77	0.23
Industrial Metals & Mining	0.0026	-0.0011	0.0037	0.0032	0.0022	0.0025	0.44	0.56
Industrial Transportation	0.0010	-0.0006	0.0017	0.0012	0.0012	0.0013	0.37	0.63
Leisure Goods	0.0005	-0.0001	0.0006	0.0009	0.0007	0.0007	0.48	0.52
Media	-0.0019	-0.0002	-0.0017	0.0010	0.0002	0.0008	0.15	0.85
Mining	0.0015	0.0004	0.0011	0.0015	0.0009	0.0011	0.42	0.58
Oil Equipment, Services & Oil and Gas Producers	0.0001	-0.0004	0.0005	0.0054	0.0053	0.0033	0.80	0.20
Personal Goods	-0.0001	-0.0004	0.0003	0.0002	0.0003	0.0003	0.12	0.88
Pharmaceuticals & Biotechnology	-0.0022	-0.0004	-0.0018	0.0010	0.0005	0.0008	0.32	0.68
Real Estate Investment & Services	0.0026	-0.0006	0.0032	0.0023	0.0033	0.0026	0.86	0.14
Software & Computer Services	-0.0028	-0.0002	-0.0025	0.0012	0.0002	0.0011	0.09	0.91
Support Services	-0.0005	-0.0002	-0.0003	0.0003	0.0002	0.0004	-0.37	1.37
Technology Hardware & Equipment	-0.0028	-0.0003	-0.0024	0.0017	0.0005	0.0014	0.20	0.80

Travel & Leisure	-0.0004	-0.0006	0.0002	0.0004	0.0007	0.0007	0.59	0.41
Market	-0.0014	-0.0087	0.0073	0.0210	0.0228	0.0066	1.04	-0.04

Panel B. Change in ranks of earnings yield differentials over time

	DIFEY		DIFEY over time				Rank over time			
Sector	Average	Std.Dev	Average DIFEY 1995-2000	Average DIFEY 2001-2005	Average DIFEY 2006-2010	Average DIFEY 2011-2015	Rank based on average DIFEY 1995-2000	Rank based on average DIFEY 2001-2005	Rank based on average DIFEY 2006-2010	Rank based on average DIFEY 2011-2015
Aerospace & Defense	-0.039	0.020	-0.031	-0.021	-0.052	-0.052	25	22	32	32
Alternative Energy	-0.010	0.018	0.002	-0.001	-0.007	-0.030	4	7	5	26
Automobiles & Parts	-0.040	0.048	-0.095	-0.009	-0.015	-0.029	33	10	7	24
Banks & Life Insurance	-0.001	0.049	-0.030	-0.030	-0.010	0.070	24	29	6	1
Beverages	-0.011	0.018	-0.001	-0.014	-0.031	-0.003	5	15	23	11
Chemicals	-0.025	0.021	-0.033	-0.006	-0.030	-0.030	27	8	22	25
Construction & Materials	-0.016	0.043	-0.033	-0.046	-0.020	0.037	28	32	10	3
Electricity	-0.014	0.034	-0.029	-0.016	-0.031	0.022	23	17	26	6
Electronic & Electrical Equipment	-0.021	0.017	-0.016	-0.009	-0.031	-0.029	17	11	27	23
Financial Services	-0.035	0.020	-0.032	-0.053	-0.034	-0.023	26	33	29	20
Fixed and Mobile Telecom	0.008	0.051	-0.007	-0.025	0.040	0.026	10	26	1	5
Food & Drug Retailers	-0.020	0.011	-0.016	-0.018	-0.027	-0.021	16	19	20	19
Food Producers	0.006	0.198	0.105	-0.036	-0.037	-0.028	1	31	30	22
Forestry & Paper	-0.017	0.042	-0.012	0.016	-0.023	-0.048	14	1	13	31
Gas, Water and Multiutilities	-0.029	0.015	-0.038	-0.031	-0.037	-0.010	29	30	31	16
General Industrials	-0.008	0.020	-0.004	0.002	-0.024	-0.008	7	5	15	14
General Retailers	-0.016	0.013	-0.009	-0.019	-0.031	-0.005	11	20	25	13
Health Care Equipment & Services	-0.025	0.013	-0.023	-0.016	-0.028	-0.033	21	16	21	29
Household Goods & Home Construction	0.012	0.123	0.066	-0.017	-0.021	0.010	2	18	12	8
Industrial Engineering	-0.030	0.020	-0.044	-0.021	-0.027	-0.027	31	21	19	21
Industrial Metals & Mining	-0.025	0.035	-0.054	0.016	-0.024	-0.032	32	2	14	27
Industrial Transportation	-0.014	0.026	-0.027	-0.028	-0.005	0.008	22	28	4	10
Leisure Goods	-0.012	0.022	0.006	-0.023	-0.018	-0.017	3	25	9	18
Media	-0.036	0.026	-0.021	-0.013	-0.059	-0.056	20	14	33	33
Mining	0.010	0.025	-0.005	0.009	0.008	0.029	8	3	2	4
Oil Equipment, Services & Oil and Gas Producers	-0.007	0.049	-0.011	0.008	-0.033	0.010	13	4	28	9
Personal Goods	-0.018	0.012	-0.017	-0.022	-0.025	-0.009	19	23	17	15
Pharmaceuticals & Biotechnology	-0.012	0.013	-0.002	-0.008	-0.026	-0.015	6	9	18	17
Real Estate Investment & Services	-0.001	0.037	-0.010	-0.027	-0.002	0.037	12	27	3	2
Software & Computer Services	-0.022	0.013	-0.015	-0.010	-0.031	-0.033	15	12	24	28
Support Services	-0.013	0.011	-0.016	-0.012	-0.016	-0.005	18	13	8	12
Technology Hardware & Equipment	-0.016	0.018	-0.005	0.000	-0.021	-0.040	9	6	11	30
Travel & Leisure	-0.020	0.024	-0.039	-0.022	-0.025	0.011	30	24	16	7

Panel C. The control variables

	China		U.S.	
Sector/Portfolio	Leverage	Earnings growth volatility	Leverage	Earnings growth volatility
Aerospace & Defense	0.446	0.243	0.213	0.277
Alternative Energy	0.449	0.477	0.131	0.676
Automobiles & Parts	0.513	0.482	0.343	0.806
Banks & Life Insurance	0.934	0.170	0.213	0.199
Beverages	0.350	0.156	0.288	0.132
Chemicals	0.447	0.349	0.280	0.382
Construction & Materials	0.552	0.258	0.245	0.365
Electricity	0.505	0.246	0.384	0.121
Electronic & Electrical Equipment	0.442	0.345	0.194	0.372
Financial Services	0.602	0.495	0.376	0.223
Fixed and Mobile Telecom	0.347	0.661	0.325	0.532
Food & Drug Retailers	0.607	0.308	0.220	0.094
Food Producers	0.470	0.269	0.328	0.122
Forestry & Paper	0.516	0.327	0.356	1.001
Gas, Water and Multiutilities	0.435	0.299	0.344	0.140
General Industrials	0.532	0.267	0.423	0.120
General Retailers	0.509	0.213	0.225	0.113
Health Care Equipment & Services	0.264	0.172	0.216	0.162
Household Goods & Home Construction	0.503	0.552	0.300	0.195
Industrial Engineering	0.515	0.208	0.308	0.325
Industrial Metals & Mining	0.508	0.742	0.238	0.599
Industrial Transportation	0.332	0.214	0.248	0.156
Leisure Goods	0.591	0.430	0.154	0.435
Media	0.370	0.243	0.294	0.319
Mining	0.413	0.360	0.254	0.452
Oil Equipment, Services & Oil and Gas Producers	0.459	0.710	0.173	0.393
Personal Goods	0.460	0.276	0.257	0.150
Pharmaceuticals & Biotechnology	0.418	0.159	0.196	0.135
Real Estate Investment & Services	0.627	0.186	0.300	0.554
Software & Computer Services	0.379	0.460	0.124	0.159
Support Services	0.672	0.269	0.213	0.175
Technology Hardware & Equipment	0.620	0.183	0.097	0.372
Travel & Leisure	0.513	0.419	0.344	0.202

Table 3 Valuation differentials and macroeconomic variables, 1995Q1-2015Q4

Panel A reports the time-series summary statistics of macroeconomic variables of China and US from 1995Q1 to 2015Q4. The definitions of all the variables are described in detail in Appendix Table A2. In the last column of Panel A, the mean differences between China and US are reported, with the significance marked by stars. Panel B, C and D report the results for pooled OLS sector/portfolio-level regressions. The panel includes 33 sectors and 8 additional portfolios formed on state ownership, international accessibility and illiquidity. The dependent variable is the sector/portfolio earning yield difference between China and US, Diff_EY. All independent variables are the difference between China and US (except for the variables in category "Political Risk", where the independent variables are constructed by taking the ratio of China over US, the other independent variables are calculated by taking the difference between China and US). In the last column of Panel B, C and D, some independent variables are dropped because of their high correlation with other independent variables. The standard errors are double clustered by sector and time. We report t statistics under the coefficient estimates. N denotes the number of observations, and Adj R^2 denotes the adjusted coefficient of determination. ***, ** and * indicate significance at the 1%, 5% and 10% levels using two-tailed tests.

Panel A. Summary statistics of macro variables of China and US

	China		US		Difference
	Mean	Std.Dev	Mean	Std.Dev	(China-US)
Financial Openness					
Trade/GDP(%)	45.3	9.87	19.77	2.35	**25.53*** **
Real Interest rate(%)	0.63	2.81	0.50	2.04	0.13
International accessibility (%)	37.13	11.27			
Regulation for openness	2.06	1.64			
Financial Development					
Real GDP growth	9.59	1.8	2.48	1.69	**7.11*** **
Number of listed firms	1459	692	5651	1307	**-4192*** **
Z-score for development (China to US)	0	1.26			
Regulation for development	0.83	0.88			
Equity market turnover(%)	43.64	28.42	44.3	14.8	**-0.66**
Zeros(%)	6.14	3.34	2.50	3.04	**3.64*** **
MYY R^2 synchronicity	0.41	0.13	0.31	0.12	**0.10*** **
Idiosyncratic volatility	0.40	0.13	0.55	0.17	**-0.16*** **
Political Risk					
Overall political rating	65.20	4.15	82.54	2.93	**-17.34*** **
Quality of institutions	15.43	0.93	24.53	0.95	**-9.10*** **
Investment profile	7.02	0.74	11.02	1.47	**-3.99*** **

Panel B. Sector/portfolio-level valuation differentials and macro variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Intercept	-0.019**	-0.021***	-0.03***	-0.022***	-0.016**	-0.021***	-0.021*	-0.021***	-0.026***	-0.02**	-0.022***	-0.021***	-0.025	-0.033	-0.012	-0.095***
	-2.30	-2.57	-3.67	-2.73	-2.10	-2.64	-1.84	-2.64	-3.46	-2.46	-2.77	-2.70	-0.93	-0.78	-0.90	-2.77
Financial Openness																
Trade/GDP	-0.007															
	-0.37															
Real interest rate		-0.103														-0.157
		-0.54														-0.82
IA			0.029													0.075**
			1.36													2.44
Regulation for openness				0.002												0.003**
				0.95												1.98
Financial Development																
Real GDP growth					-0.086											-0.506***
					-1.19											-5.14
Equity market turnover						0.004										-0.007
						0.85										-0.77
Number of listed firms							0.0002									
							0.05									
Zeros								0.031								0.101***
								0.56								4.25
R squared									0.028							0.051***
									1.38							4.64
Idiosyncratic volatility										0.007						-0.009
										0.81						-0.37
Z score											-0.002					-0.002
											-1.16					-1.28
Regulation for development												0.003				
												1.04				
Political Risk																
Overall political_rating													0.005			0.086**
													0.14			2.36
Quality of institutions														0.018		
														0.27		
Investment profile															-0.012	
															-0.69	
Leverage	0.022**	0.02**	0.018**	0.019**	0.024***	0.021***	0.021***	0.02**	0.023***	0.02**	0.022***	0.019**	0.021**	0.021***	0.02**	0.02***
	2.50	2.42	2.18	2.44	2.71	2.58	2.56	2.51	2.70	2.52	2.65	2.40	2.44	2.59	2.54	2.63
Earnings growth volatility	-0.006	-0.006	-0.007	-0.005	-0.006	-0.006	-0.006	-0.005	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.004
	-0.71	-0.68	-0.80	-0.64	-0.69	-0.70	-0.71	-0.64	-0.70	-0.68	-0.67	-0.70	-0.65	-0.75	-0.66	-0.47
min_num_firms (log)	0.0003	0.0004	-0.0001	-0.0003	0.0004	0.0003	0.0002	0.0001	0.0008	0.0002	0.0005	-0.0003	0.0003	0.0004	-0.0001	-0.0002
	0.16	0.25	-0.06	-0.17	0.20	0.16	0.13	0.01	0.48	0.12	0.29	-0.18	0.17	0.28	-0.01	-0.09
N	3294	3294	3294	3294	3294	3294	3294	3294	3294	3294	3294	3294	3294	3294	3294	3294
Adj R2	0.010	0.012	0.015	0.013	0.012	0.010	0.010	0.011	0.018	0.011	0.012	0.013	0.010	0.010	0.011	0.063

Table 4 Valuation differentials and sector/portfolio fundamental variables, 1995Q1-2015Q4

This table reports summary statistics and regression results related to sector/portfolio-level fundamental characteristics in 1995Q1 to 2015Q4. Panel A reports the time-series average of sector-level concentration ratio (CR4), leverage, earnings growth volatility, sales (log) growth and earnings (log) growth for China and US. Detailed descriptions of these variables could be found in Appendix Table A2. The panel includes 33 sectors and 8 additional portfolios formed on state ownership, international accessibility and illiquidity. The detailed description of the portfolio formations is in Appendix Section A3. Panel B reports the results for sector/portfolio-level regressions. The dependent variable is the sector/portfolio earning yield difference between China and US, Diff_EY. All independent variables are calculated by taking the difference between China and US. In the last column of Panel B, some independent variables are dropped because of their high correlation with other independent variables. The standard errors are double clustered by sector and time. We report t statistics under the coefficient estimates. N denotes the number of observations, and Adj R^2 denotes the adjusted coefficient of determination. ***, ** and * indicate significance at the 1%, 5% and 10% levels using two-tailed tests.

Panel A. Summary statistics for sector/portfolio fundamentals

	China			U.S.		
Sector/Portfolio	CR4	Sales (log) growth	Earnings (log) growth	CR4	Sales (log) growth	Earnings (log) growth
Aerospace & Defense	0.823	0.157	0.036	0.618	0.037	0.064
Alternative Energy	0.901	0.114	-0.047	0.840	0.098	0.056
Automobiles & Parts	0.416	0.150	0.150	0.651	-0.001	0.015
Banks & Life Insurance	0.848	0.199	0.153	0.412	0.049	0.064
Beverages	0.621	0.100	0.093	0.923	0.021	0.040
Chemicals	0.340	0.099	0.013	0.489	0.019	0.056
Construction & Materials	0.340	0.125	0.059	0.363	0.039	0.030
Electricity	0.518	0.137	0.105	0.282	0.034	0.024
Electronic & Electrical Equipment	0.265	0.098	0.038	0.364	0.046	0.045
Financial Services	0.669	0.100	0.175	0.375	0.055	0.065
Fixed and Mobile Telecom	0.989	0.100	-0.118	0.716	0.051	0.047
Food & Drug Retailers	0.728	0.098	0.039	0.556	0.066	0.081
Food Producers	0.340	0.032	0.001	0.390	0.025	0.041
Forestry & Paper	0.542	0.089	-0.023	0.776	0.003	0.091
Gas, Water and Multiutilities	0.668	0.057	0.051	0.449	0.082	0.039
General Industrials	0.550	0.127	0.096	0.859	0.022	0.021
General Retailers	0.247	0.119	0.054	0.470	0.053	0.055
Health Care Equipment & Services	0.846	0.195	0.093	0.293	0.092	0.095
Household Goods & Home Construction	0.524	0.127	0.079	0.660	0.027	0.060
Industrial Engineering	0.255	0.127	0.055	0.431	0.034	0.051
Industrial Metals & Mining	0.404	0.114	-0.075	0.639	0.035	0.035
Industrial Transportation	0.472	0.095	0.025	0.564	0.049	0.048
Leisure Goods	0.567	0.081	0.045	0.628	0.008	0.049
Media	0.640	0.084	0.125	0.440	0.069	0.097
Mining	0.610	0.162	0.075	0.655	0.014	-0.012
Oil Equipment, Services & Oil and Gas Producers	0.937	0.120	0.021	0.556	0.053	0.084
Personal Goods	0.287	0.097	0.066	0.613	0.031	0.038

Pharmaceuticals & Biotechnology	0.195	0.137	0.085	0.496	0.065	0.074
Real Estate Investment & Services	0.255	0.105	0.065	0.668	0.084	0.104
Software & Computer Services	0.452	0.106	0.094	0.633	0.056	0.115
Support Services	0.472	0.130	0.020	0.308	0.043	0.063
Technology Hardware & Equipment	0.387	0.145	0.088	0.481	0.060	0.088
Travel & Leisure	0.542	0.119	0.098	0.400	0.048	0.071
Portfolios						
State-own Portfolio 1 (SO=0)	0.449	0.108	0.064	0.536	0.038	0.050
State-own Portfolio 2 (0<SO<=10%)	0.521	0.130	0.092	0.508	0.050	0.045
State-own Portfolio 3 (10%<SO<=50%)	0.408	0.117	0.064	0.520	0.042	0.055
State-own Portfolio 4 (SO>50%)	0.505	0.125	0.070	0.521	0.037	0.049
International Accessibility Portfolio 1 (IA1=0)	0.422	0.122	0.072	0.529	0.043	0.052
International Accessibility Portfolio 2 (IA1>0)	0.565	0.115	0.048	0.524	0.035	0.050
Illiquidity Portfolio 1 (Zeros<=Country Zeros Median)	0.460	0.149	0.091	0.529	0.046	0.067
Illiquidity Portfolio 2 (Zeros>Country Zeros Median)	0.502	0.095	0.043	0.524	0.017	-0.051
Market	0.485	0.113	0.051	0.519	0.051	0.074

Panel B. Sector/portfolio-level valuation differentials and fundamentals

	(1)	(2)	(3)	(4)	(5)
Intercept	-0.021***	-0.023***	-0.021**	-0.02**	-0.019**
	-2.64	-2.83	-2.55	-2.48	-2.22
CR4		0.004			0.003
		0.46			0.37
Sales (log) growth			-0.025		-0.036
			-0.72		-1.03
Earnings (log) growth				0.007	0.014***
				1.08	4.55
Leverage	0.021***	0.02**	0.023***	0.02**	0.022**
	2.57	2.50	2.56	2.46	2.51
Earnings growth volatility	-0.006	-0.007	-0.007	-0.006	-0.009
	-0.68	-0.78	-0.88	-0.71	-1.09
min_num_firms (log)	0.0003	0.0008	0.0006	-0.0001	0.0005
	0.15	0.43	0.36	-0.02	0.28
N	3294	3294	3294	3294	3294
Adj R^2	0.010	0.010	0.028	0.015	0.047

Table 5. Valuation differentials and the ownership in China, 1995Q1-2015Q4

This table reports summary statistics and regression results related to sector/portfolio-level ownership of China in 1995Q1 to 2015Q4. Panel A reports the time-series average of sector-level state ownership, A-B premium, A-H premium, and three measures of international accessibility of China. Detailed descriptions of these variables could be found in Appendix Table A2. The panel includes 33 sectors and 8 additional portfolios formed on state ownership, international accessibility and illiquidity. The detailed description of the portfolio formations is in Appendix Section A3. Panel B reports the results for sector/portfolio-level regressions. The dependent variable is the sector/portfolio earning yield difference between China and US, Diff_EY. In the last column of Panel B, some independent variables are dropped because of their high correlation with other independent variables. The standard errors are double clustered by sector and time. We report t statistics under the coefficient estimates. N denotes the number of observations, and Adj R^2 denotes the adjusted coefficient of determination. ***, ** and * indicate significance at the 1%, 5% and 10% levels using two-tailed tests.

Panel A. Summary statistics of ownership variables specific to China

	China					
Sector/Portfolio	State ownership	A-B Premium	A-H Premium	FO1: Weighted average of sum of dummies for B, H and ADR	FO2: MV(B,H and ADR)/total MV	FO3: Market share of firms with B share, H share or ADR
Aerospace & Defense	0.341	N/A	N/A	0	0	0
Alternative Energy	0.088	N/A	0.806	0.085	0.010	0.083
Automobiles & Parts	0.351	1.579	0.556	0.348	0.058	0.256
Banks & Life Insurance	0.200	N/A	0.069	0.670	0.165	0.384
Beverages	0.351	1.283	0.999	0.290	0.070	0.218
Chemicals	0.329	2.585	2.063	0.487	0.068	0.290
Construction & Materials	0.293	1.578	3.389	0.441	0.091	0.343
Electricity	0.420	1.047	0.627	0.457	0.072	0.286
Electronic & Electrical Equipment	0.242	1.861	4.641	0.188	0.022	0.188
Financial Services	0.265	N/A	0.098	0.073	0.008	0.062
Fixed and Mobile Telecom	0.171	N/A	N/A	0	0	0
Food & Drug Retailers	0.210	N/A	N/A	0	0	0
Food Producers	0.195	2.704	N/A	0.094	0.007	0.089
Forestry & Paper	0.245	0.684	0.785	0.181	0.039	0.125
Gas, Water and Multiutilities	0.317	N/A	3.527	0.236	0.020	0.183
General Industrials	0.100	N/A	0.366	0.034	0.017	0.032
General Retailers	0.202	1.478	N/A	0.048	0.008	0.048
Health Care Equipment & Services	0.301	N/A	N/A	0	0	0
Household Goods & Home Construction	0.075	1.245	3.062	0.233	0.037	0.227
Industrial Engineering	0.304	1.905	3.002	0.427	0.069	0.369
Industrial Metals & Mining	0.418	2.260	1.708	0.537	0.077	0.290
Industrial Transportation	0.333	1.568	0.872	0.449	0.072	0.345
Leisure Goods	0.294	2.239	N/A	0.220	0.032	0.215
Media	0.297	N/A	N/A	0.000	0.000	0.000

Mining	0.328	N/A	0.937	0.605	0.106	0.317
Oil Equipment, Services & Oil and Gas Producers	0.443	N/A	0.488	1.312	0.160	0.715
Personal Goods	0.185	1.714	N/A	0.247	0.041	0.247
Pharmaceuticals & Biotechnology	0.244	2.514	3.589	0.094	0.011	0.083
Real Estate Investment & Services	0.248	1.366	1.236	0.348	0.043	0.287
Software & Computer Services	0.148	3.078	N/A	0.130	0.013	0.126
Support Services	0.308	2.325	0.695	0.230	0.019	0.229
Technology Hardware & Equipment	0.243	1.629	3.227	0.242	0.035	0.193
Travel & Leisure	0.371	1.206	1.733	0.757	0.117	0.465
Portfolios						
State-own Portfolio 1 (SO=0)	0.000	1.520	1.945	0.409	0.083	0.305
State-own Portfolio 2 (0<SO<=10%)	0.048	0.977	0.308	0.431	0.060	0.304
State-own Portfolio 3 (10%<SO<=50%)	0.328	1.492	1.857	0.295	0.055	0.273
State-own Portfolio 4 (SO>50%)	0.656	1.972	1.836	0.689	0.096	0.400
International Accessibility Portfolio 1 (IA1=0)	0.293	N/A	N/A	0	0	0
International Accessibility Portfolio 2 (IA1>0)	0.371	1.662	1.642	1.535	0.249	1
Illiquidity Portfolio 1 (Zeros<=Country Zeros Median)	0.313	1.669	2.241	0.485	0.080	0.324
Illiquidity Portfolio 2 (Zeros>Country Zeros Median)	0.334	1.618	1.563	0.697	0.123	0.404
Market	0.324	1.779	2.259	0.587	0.100	0.370

Panel B. Sector/portfolio-level valuation differentials and the ownership in China

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	-0.015*	-0.016*	-0.014	-0.02***	-0.019***	-0.022***	-0.008
	-1.90	-1.75	-1.56	-2.71	-2.59	-2.82	-0.96
State ownership	-0.018**						-0.022***
	-2.10						-2.71
A-B premium		-0.002**					0.0004
		-2.21					0.40
A-H premium			-0.002***				-0.001*
			-2.95				-1.70
FO1: Weighted average of sum of dummies for B, H and ADR				0.018***			
				3.16			
FO2: MV(B,H and ADR)/total MV					0.128***		0.127***
					5.53		5.69
FO3: Market share of firms with B, H or ADR						0.028**	
						2.38	
Leverage	0.02**	0.019**	0.015**	0.014**	0.009	0.015**	0.004
	2.53	2.34	2.08	2.12	1.48	2.11	0.71
Earnings growth volatiltiy	-0.006	-0.004	-0.005	-0.007	-0.004	-0.007	-0.004
	-0.72	-0.47	-0.54	-0.82	-0.49	-0.81	-0.48
min_num_firms (log)	0.0001	-0.0001	-0.0002	-0.001	-0.002	-0.001	-0.002
	0.07	-0.07	-0.12	-0.69	-0.99	-0.63	-1.23
N	3294	3294	3294	3294	3294	3294	3294
Adj R^2	0.016	0.016	0.027	0.037	0.052	0.032	0.068

Table 6 Valuation differentials and most related variables selected by PcGets, 1995Q1-2015Q4

This table reports sector regression results on all related variables discussed in Table 3, Table 4 and Table 5 from 1995Q1 to 2015Q4. The panel includes 33 sectors and 8 additional portfolios formed on state ownership, international accessibility and illiquidity. The dependent variable is the sector/portfolio earning yield difference between China and US, Diff_EY. All independent variables are the difference between China and US (except for the variables in category "Political Risk", where the independent variables are constructed by taking the ratio of China over US, the other independent variables are calculated by taking the difference between China and US). The standard errors are double clustered by sector and time. We applied PcGets procedure to pick out the most important independent variables included in the regression. The overall variance contribution of each selected variable is reported. Detailed description of the PcGets Procedure is provided in Appendix Table A3. We report t statistics under the coefficient estimates. N denotes the number of observations, and Adj R^2 denotes the adjusted coefficient of determination. ***, ** and * indicate significance at the 1%, 5% and 10% levels.

	PcGets	Variance Decomposition
Dependent Variable: Diff_EY		
Intercept	-0.055*	
	-1.88	
Financial Development		
Real GDP growth	-0.358***	0.026
	-4.69	
Equity market turnover	-0.01**	-0.013
	-2.34	
R squared	0.036**	0.124
	2.25	
Political Risk		
Overall political rating	0.089**	0.044
	2.25	
Ownership		
A-H premium	-0.002***	0.189
	-2.68	
State ownership	-0.041***	0.162
	-2.81	
FO2: MV(B,H and ADR)/total MV	0.137***	0.469
	5.30	
Total Variance Contribution		1.00
N	3413	
Adj R^2	0.092	

Table 7 Valuation differentials and additional variables, 2004Q1-2015Q4

This table reports time-series summary statistics and sector/portfolio-level panel regression results on additional variables that have better coverage starting from 2004Q1 to 2015Q4. Panel A reports the time-series average of sector-level standardized unexpected earnings (SUE), number of analysts following, analyst forecast dispersion, total institutional ownership, domestic institutional ownership and foreign institutional ownership. Detailed descriptions of these variables could be found in Appendix Table A2. The panel includes 33 sectors and 8 additional portfolios formed on state ownership, international accessibility and illiquidity. The detailed description of the portfolio formations is in Appendix Section A3. Panel B reports the results for sector/portfolio-level regressions. The dependent variable is the sector/portfolio earning yield difference between China and US, Diff_EY. All independent variables are the difference between China and US (except for the variables in category "Political Risk", where the independent variables are constructed by taking the ratio of China over US, the other independent variables are calculated by taking the difference between China and US). In the last two columns of Panel B, we applied PcGets procedure to pick out the most important independent variables included in the regression for the period 2004Q1 to 2015Q4. The overall variance contribution of each selected variable is reported in the last column. Detailed description of the PcGets Procedure is provided in Appendix Table A3. In all regression specifications, the standard errors are double clustered by sector and time. We report t statistics under the coefficient estimates. N denotes the number of observations, and Adj R^2 denotes the adjusted coefficient of determination. ***, ** and * indicate significance at the 1%, 5% and 10% levels using two-tailed tests.

Panel A. Summary statistics of additional variables for China and US

	China						US					
Sector/Portfolio	SUE	Num of Analysts	Forecast dispersion	Institutional Ownership	Institutional Ownership (domestic)	Institutional Ownership (foreign)	SUE	Num of Analysts	Forecast dispersion	Institutional Ownership	Institutional Ownership (domestic)	Institutional Ownership (foreign)
Aerospace & Defense	-1.39	1	0.165	0.037	0.033	0.004	-3.01	18	0.041	0.837	0.767	0.070
Alternative Energy	-0.47	2	0.177	0.099	0.065	0.034	-1.64	19	0.274	0.577	0.475	0.102
Automobiles & Parts	0.29	3	0.155	0.051	0.031	0.021	-1.67	18	0.232	0.749	0.681	0.068
Banks & Life Insurance	-1.40	6	0.092	0.079	0.061	0.018	-2.30	28	0.264	0.678	0.600	0.078
Beverages	-1.37	4	0.077	0.082	0.065	0.017	-3.63	15	0.017	0.685	0.608	0.077
Chemicals	-0.99	1	0.280	0.050	0.037	0.014	-4.57	15	0.064	0.748	0.679	0.069
Construction & Materials	-0.43	2	0.129	0.070	0.033	0.037	-4.54	12	0.163	0.822	0.752	0.070
Electricity	0.38	3	0.290	0.027	0.020	0.007	-5.42	10	0.050	0.690	0.615	0.075
Electronic & Electrical Equipment	-1.00	1	0.133	0.061	0.054	0.007	-8.31	10	0.073	0.833	0.767	0.066
Financial Services	-0.19	4	0.178	0.048	0.023	0.025	-1.58	28	0.224	0.780	0.696	0.084
Fixed and Mobile Telecom	9.60	4	0.220	0.052	0.045	0.008	-7.63	34	0.376	0.655	0.579	0.076
Food & Drug Retailers	-0.94	1	0.180	0.059	0.054	0.005	-5.65	9	0.035	0.855	0.757	0.098
Food Producers	-1.13	2	0.212	0.062	0.048	0.014	-1.09	9	0.079	0.716	0.641	0.075
Forestry & Paper	-1.40	1	0.319	0.045	0.022	0.023	-3.10	19	0.407	0.888	0.813	0.074
Gas, Water and Multiutilities	0.11	1	0.237	0.018	0.015	0.003	-3.53	6	0.036	0.633	0.573	0.061
General Industrials	-0.05	1	0.127	0.020	0.018	0.002	-8.30	14	0.026	0.664	0.594	0.070
General Retailers	-0.03	2	0.211	0.090	0.080	0.009	-0.90	9	0.266	0.715	0.648	0.067
Health Care Equipment & Services	-2.68	1	0.085	0.070	0.060	0.010	-12.25	13	0.072	0.869	0.784	0.085
Household Goods & Home Construction	-0.41	3	0.080	0.092	0.068	0.023	-3.39	13	0.120	0.703	0.630	0.073
Industrial Engineering	-0.71	2	0.268	0.058	0.038	0.019	-1.54	16	0.078	0.795	0.724	0.072
Industrial Metals & Mining	-1.15	3	0.336	0.031	0.027	0.004	-2.54	26	0.265	0.704	0.627	0.077
Industrial Transportation	0.54	2	0.594	0.028	0.022	0.006	1.28	25	0.060	0.748	0.677	0.071
Leisure Goods	-2.10	1	0.323	0.038	0.036	0.002	-2.58	11	0.789	0.840	0.766	0.073
Media	-0.53	2	0.137	0.068	0.063	0.005	3.26	18	0.333	0.770	0.685	0.086
Mining	0.47	4	0.270	0.048	0.043	0.005	-1.77	22	0.512	0.860	0.741	0.119
Oil Equipment, Services & Oil and Gas Producers	-0.47	4	0.100	0.072	0.065	0.007	-0.83	46	0.225	0.714	0.640	0.074

Personal Goods	-0.84	1	0.120	0.052	0.037	0.015	-2.81	14	0.035	0.792	0.704	0.087
Pharmaceuticals & Biotechnology	-1.29	1	0.125	0.072	0.064	0.008	-13.95	22	0.117	0.760	0.670	0.090
Real Estate Investment & Services	-0.61	2	0.325	0.061	0.044	0.017	-2.87	3	0.548	0.838	0.776	0.062
Software & Computer Services	-1.56	1	0.204	0.072	0.068	0.004	-5.16	16	0.086	0.718	0.636	0.082
Support Services	-0.50	1	0.143	0.053	0.042	0.011	-6.93	11	0.077	0.837	0.766	0.071
Technology Hardware & Equipment	-2.31	2	0.169	0.063	0.035	0.028	-3.63	35	0.116	0.768	0.683	0.085
Travel & Leisure	-0.50	3	0.462	0.056	0.051	0.005	-3.14	24	0.160	0.766	0.698	0.068
Portfolios												
State-own Portfolio 1 (SO=0)	-0.16	3	0.182	0.061	0.046	0.014	-3.77	20	0.224	0.744	0.668	0.076
State-own Portfolio 2 (0<SO<=10%)	-0.49	3	0.132	0.064	0.049	0.014	-3.17	21	0.226	0.757	0.680	0.077
State-own Portfolio 3 (10%<SO<=50%)	-0.51	2	0.192	0.057	0.037	0.020	-3.02	19	0.173	0.754	0.677	0.077
State-own Portfolio 4 (SO>50%)	-0.86	3	0.140	0.034	0.027	0.007	-2.22	23	0.238	0.747	0.669	0.078
International Accessibility Portfolio 1 (IA1=0)	-0.62	2	0.154	0.051	0.042	0.009	-3.56	18	0.189	0.758	0.682	0.077
International Accessibility Portfolio 2 (IA1>0)	-0.68	4	0.175	0.123	0.055	0.068	-2.08	29	0.243	0.731	0.653	0.077
Illiquidity Portfolio 1 (Zeros<=Country Zeros Median)	-0.52	3	0.180	0.059	0.046	0.013	-3.23	21	0.194	0.761	0.681	0.080
Illiquidity Portfolio 2 (Zeros>Country Zeros Median)	-0.86	3	0.139	0.045	0.036	0.010	-2.62	13	0.372	0.672	0.616	0.056
Market	-0.69	3	0.189	0.062	0.047	0.015	-3.63	21	0.151	0.742	0.664	0.078

Panel B. Sector/portfolio-level valuation differentials and additional variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7) PcGets	Variance Decomposition
Dependent variable: Diff_EY								
Intercept	-0.025**	-0.016	-0.023	-0.005	-0.003	-0.023	0.05***	
	-2.08	-0.96	-1.35	-0.18	-0.10	-1.43	4.49	
Real interest rate							0.515***	0.129
							6.96	
International accessibility							-0.067***	0.044
							-3.08	
Regulations for openness							-0.006***	-0.026
							-3.46	
Real GDP growth							-0.262***	0.131
							-4.63	
Earnings (log) growth							0.013***	0.059
							5.20	
Standardized unexpected earnings (SUE)	0.001***						0.001***	0.182
	5.40						6.36	
Num of analysts		0.002						
		0.78						
Forecast dispersion			-0.001					
			-1.06					
A-B premium							-0.011***	0.064
							-2.85	
FO2: MV(B,H and ADR)/total MV							0.149***	0.418
							6.46	
Institutional ownership				0.021				
				0.75				
Institutional ownership (domestic)					0.027			
					0.96			
Institutional ownership (foreign)						-0.034		
						-0.54		
Leverage	0.021*	0.018	0.018	0.018	0.018	0.019		
	1.64	1.35	1.29	1.39	1.42	1.35		
Earnings growth volatility	-0.015*	-0.013	-0.012	-0.014	-0.015	-0.013		
	-1.79	-1.30	-1.19	-1.48	-1.53	-1.21		
min_num_firms (log)	0.0008	0.0005	0.001	0.0006	0.0006	0.0009		
	0.31	0.15	0.38	0.17	0.17	0.24		
Total Variance Contribution								1.0
N	1968	1854	1740	1849	1849	1849	1968	
Adj R^2	0.123	0.030	0.035	0.032	0.034	0.030	0.424	

Appendix

A1. Major events related to stock market development in China

Table A1. Major events related to stock market development in China

Category	Date	Description	Key words
Policy	2001.2	Citizens in mainland China were permitted to invest in B shares.	B shares
Policy	2002.11.5	People's Bank of China (PBOC) and China Securities Regulatory Commission (CSRC) jointly published "the Administration of Domestic Securities Investments of Qualified Foreign Institutional Investors (QFII) (Trial)", indicating the official start of QFII.	QFII
Market	2003.7	The first investment of QFII was generated by UBS.	QFII
Policy	2005.4.29	CSRC announced the official start of the trial run of Split-Share Structure Reform. [MARKET DEVELOPMENT]	Split-Share
Policy	2006.4	People's Bank of China announced for the first time that qualified funds and other fund-raising institutions can trade in stocks, bonds and funds and other securities outside of China, indicating the official start of QDII.	QDII
Market	2006.8	The first trial QDII fund, Hua'an International Fund, was established by Hua'an Fund.	QDII
Policy	2008.10.5	CSRC announced that the program of dual margin trading and short selling in stock market would start at some point in the future.	Margin Trading and Short Selling
Market	2010.3.31	It was the first day of margin trading and short selling. Hundreds of transactions went through and the total trading value of margin trading and short selling was about 6.59 million RMB. [MARKET DEVELOPMENT]	Margin Trading and Short Selling
Policy	2011.12.16	CSRC announced "Administration of Domestic Securities Investment by Fund Management Companies and Securities Companies as RMB Qualified Foreign Institutional Investors (RQFII) (Trial)"	RQFII
Market	2014.4.10	Shanghai-Hong Kong Stock Connect was announced to be started in the future.	Shanghai-Hong Kong Connect
Policy	2014.6.13	"Regulations of Shanghai-Hong Kong Stock Connect" was published and executed.	Shanghai -Hong Kong Connect
Policy	2014.11.17	Shanghai-Hong Kong Stock Connect officially started.	Shanghai -Hong Kong Connect

A2. Variable Descriptions

Table A2 Variable description

Variable	Description
DIFEY	$DIFEY_{j,t} = EY_{j,t}^{CN} - EY_{j,t}^{US}$
(sector/portfolio level)	This measure of sector-level earnings differential is the China-US sector valuation differentials. In each country, sector valuation EY is the sum of net incomes across all firms in the sector over sector market capitalization. Frequency: Quarterly.
Control Variables	
Leverage	Sector-level leverage is calculated as the value-weighted (using last-quarter market cap as weight) ratios of total debt over total assets. Frequency: Quarterly. Sources: CSMAR and COMPUSTAT.
Log real earnings growth volatility	Sector-level net income (NI) is calculated by adding up firm-level net NI with setting negative NI to zero. The NI of each sector in quarter t is annualized by summing up sector-level NI from quarter t-4 to quarter t-1. The sector real NI growth is calculated as $\log\left(\frac{NI_t * CPI_{t-4}}{NI_{t-4} * CPI_t}\right)$. We calculate the volatility of sector NI growth each quarter by calculating the standard deviation of the log growth rate over the past twenty quarters. For the beginning of the sample, for the 10th observation of each quarter, we use 10 observations to calculate standard deviation and then simply add observations until we reach the 20th observation. For the first 10 observations, we simply use the standard deviation we computed for the 10th observation. Frequency: Quarterly. Source: CSMAR and COMPUSTAT.
Minimum number of stocks (log)	Natural logarithm of the minimum number of stocks in each sector of China and US. Frequency: Quarterly.
Financial Openness	
Trade/GDP	The sum of total export and total import over the past four quarters over the sum of nominal GDP over the past four quarters. Frequency: Quarterly. Source: IMF, International Financial Statistics and US Bureau of the Census.
Real Interest rate differentials	The difference between the real interest rate between China and US. For the nominal interest rate in China, we use the 1-year institution and individual deposit rate, obtained from People's Bank of China. For US, we use the 1-year Treasury constant maturity Rate from FRED Economic Data. Real interest is calculated by subtracting nominal interest rate by inflation. The inflation rate is calculated as the percentage change of quarterly CPI over the same quarter in the previous year. Inflation rate(t) = CPI(t)/CPI(t-4)-1. We obtained the quarterly CPI data from China National Bureau of Statistics and US Bureau of Labor Statistics. Frequency: Quarterly. Source: People's Bank of China, China National Bureau of Statistics, FRED and US Bureau of Labor Statistics.
International accessibility	Market-level international accessibility (IA) is calculated as the market share of A stocks which have either B share, H share or ADR listed in the total A share market capitalization. Frequency: Quarterly. Source: calculated by author using data from CSMAR (on B shares) and WIND (on H shares).
Regulation for openness	Based on the major events listed in Table A1, this cumulative regulation dummy variable is constructed as follows: take the value of 0 from 1995Q1 to 2000Q4, the value of 1 from 2001Q1 to 2002Q3 (Bshares), the value of 1.5 from 2002Q4 to 2003Q2 (the announcement of QFII), the value of 2 from 2003Q3 to 2006Q1 (the first transaction by QFII), the value of 2.5 in 2006Q2 (the announcement of QDII), the value of 3 from 2006Q3 to 2011Q3 (market execution of QDII), the value of 4 from 2011Q4 to 2014Q1 (the announcement and market execution of RQDII), the value of 4.67 from 2014Q2 to 2014Q3 (the announcement and regulation execution of Shanghai-Hong Kong Connect), and the value of 5 from 2014Q4 to 2015Q5 (the official start of Shanghai-Hong Kong Connect). Frequency: Quarterly. Source: constructed by authors.
Financial Development	

Real GDP growth	Real GDP growth in quarter t is calculated as [GDP(t)+GDP(t-1)+GDP(t-2)+GDP(t-3)]/ [GDP(t-4)+GDP(t-5)+GDP(t-6)+GDP(t-7)]-1.
MCAP/GDP	The ratio of total equity market capitalization over annualized quarterly nominal GDP. Total equity market capitalization is the sum of total market capitalization across all firms at the end of each quarter. Quarterly nominal GDP is annualized by taking the rolling sum of the nominal GDP in current quarter and previous 3 quarters. Frequency: Quarterly.
Number of public firms (log)	The log of the number of publicly traded firms at the end of each quarter in a given country. Frequency: Quarterly.
Z-score for development	let MC_t^{CN} be the stock market capitalization of China relative to GDP and MC_t^{US} be the stock market capitalization of the US relative to GDP. Let $MCRatio_t = MC_t^{CN}/MC_t^{US}$.Then, standardize $MCRatio_t$by subtracting its mean and divided by standard deviation over 1995Q1 to 2015Q4. For the next step, take one year past cumulative market return in China and divide by one year cumulative market return in the US. This ratio is denoted as $RetRatio_t$. This variable measures recent trends in returns. Then, standardize $RetRatio_t$by subtracting its mean and divided by standard deviation over 1995Q1 to 2015Q4. The Z-score for development is the difference between standardized $MCRatio_t$ and standardized $RetRatio_t$. Frequency: Quarterly. Sources: CSMAR and CRSP.
Regulation for development	Based on the major events listed in Table A1, this cumulative regulation dummy variable is constructed as follows: take the value of 0 from 1995Q1 to 2005Q1, the value of 1 from 2005Q2 to 2008Q3 (the Split-share Reform), the value of 1.5 from 2008Q4 to 2009Q4 (the announcement of the Margin Trading and Short-selling Program), the value of 2 from 2010Q4 to 2015Q4 (the official start of the Margin Trading and Short-selling Program). Frequency: Quarterly. Source: constructed by authors.
Zeros	Following Bekaert, Harvey, and Lundblad (2007), we calculate zeros as the proportion of zeros daily returns observed over the relevant quarter for each security. We obtain security-level daily return data from CSMAR (China) and CRSP (US). For each country in each quarter, we calculate the market capitalization-weighted (using the market cap from last quarter) proportion of zero daily returns across all firms. Frequency: Quarterly.
Equity market turnover	The ratio of equity market value traded to total equity market capitalization. We obtain security-level monthly return data from CSMAR (China) and CRSP (US). In each quarter, equity market value traded is the sum of monthly value traded across all firms. Total equity market capitalization is the sum of total market capitalization across all firms at the end of each quarter. Frequency: Quarterly.
MYY R^2 synchronicity	Following Morck, Yeung, and Yu (2000), R squared is a quarterly value-weighted local market model R^2 obtained from each firm's daily returns regressed on the local market portfolio return over each quarter. For China, the local market portfolio return is the value-weighted returns for all A shares. The US market portfolio is the value-weighted return of all CRSP stocks. Frequency: Quarterly. Sources: CSMAR and CRSP.
Idiosyncratic volatility	We obtain security-level idiosyncratic volatility by calculating the standard deviation of the residuals after regressing daily stock returns on local market portfolio returns in each quarter, annualized by multiplying $\sqrt{250}$. For sector-level and market-level, we take average of all the firms included. Frequency: Quarterly.
Political Risk and Institutions	
Overall political rating	The sum of all 12 ICRG subcomponents, with a total score of 100 and the maximum score for each subcomponents displayed in parenthesis: Government Stability (12), Socioeconomic Conditions (12), Investment Profile (12), Internal Conflict (12), External Conflict (12), Corruption (6), Military in Politics (6), Religious Tensions (6), Law and Order (6), Ethnic Tensions (6), Democratic Accountability (6), and Bureaucracy Quality (4). Frequency: Annual. Source: ICRG.

Quality of institutions	The sum of ICRG subcomponents, with a maximum score of 28: Corruption, Law and Order, Bureaucratic Quality, and Investment Profile. Frequency: Annual. Source: ICRG.
Investment profile	Frequency: Annual. Source: ICRG.
Fundamentals	
Concentration Ratio (CR4)	The sector concentration ratio (CR4) is calculated by adding up the market share of the top four largest firms (in terms of market capitalization) within the sector. $\mathrm{CR4} = \sum_{i=1}^{4} s_i$, where s_i is the market share of the ith largest firm in a given sector. Frequency: Quarterly.
Real Sales growth (log)	Sector-level sales is calculated by adding up firm-level sales with setting negative sales to zero. The sales of each sector in quarter t is annualized by summing up sector-level sales from quarter t-4 to quarter t-1. The sector real sales growth is calculated as $\log\left(\frac{Sales_t * CPI_{t-4}}{Sales_{t-4} * CPI_t}\right)$. The sales data items are different between China and US. For US, the net sales is calculated as gross sales reduced by cash discounts, trade discounts, returned sales and the allowances for which credit is given to customers. For China, the sales from CSMAR is gross sales. Cash discounts is taken care of under financial expenses, but we don't have the detailed data on financial expenses. Returned sales and the credit given to customers are taken care of under deferred income, but again we don't have the detailed data item on this. So we just use the gross sales to calculate the sales growth rate for China. Frequency: Quarterly. Source: CSMAR and COMPUSTAT.
Real earnings growth (log)	Sector-level earnings is calculated by adding up firm-level net income with setting negative net income to zero. The net income of each sector in quarter t is annualized by summing up sector-level net income from quarter t-4 to quarter t-1. The sector real earnings growth is calculated as $\log\left(\frac{NI_t * CPI_{t-4}}{NI_{t-4} * CPI_t}\right)$. Frequency: Quarterly. Source: CSMAR and COMPUSTAT.
Ownership	
State Ownership	For China, state ownership is the proportion of total shares that is owned by the state. Frequency: Quarterly. Source: CSMAR.
A-B premium	For China stocks that have both A and B shares, A-B premium is calculated as the price of A share divided by the price of B share minus 1. B shares listed in Shanghai Stock Exchange are priced by US dollars, and B shares listed in Shenzhen exchange are priced by Hong Kong dollars. B share prices are converted into RMB prices using quarter-end exchange rates. Frequency: Quarterly. Source: CSMAR.
A-H premium	For China stocks that have both A and H shares, A-H premium is calculated as the price of A share divided by the price of H share minus 1. H share prices are converted into RMB prices using quarter-end exchange rates. Frequency: Quarterly. Source: WIND.
Foreign ownership 1	Firm FO1 is calculated by adding up three dummy variables, B_indic, H_indic and ADR. B_indic (H_indic, ADR) is equal to 1 if the stock has B shares (H shares, ADR) issued at the same time. Firm FO1 takes the minimum value of 0, meaning the stocks have no international accessibility, and takes the maximum of 3, which indicates the stocks have B shares, H shares and ADR. Sector FO1 is the weighted average of the firm-level FO1 within the sector, using the firm market capitalization of last quarter as weight. Frequency: Quarterly. Source: calculated by author using data from CSMAR (on B shares) and WIND (on H shares).
Foreign ownership 2	Firm FO2 is the ratio of market capitalization of B shares, H shares and ADR to firm total market capitalization. Sector FO2 is the weighted average of the firm-level FO2 within the sector, using the firm market capitalization of last quarter as weight. Frequency: Quarterly. Source: calculated by author using data from CSMAR (on B shares) and WIND (on H shares).
Foreign ownership 3	Sector FO3 is the market share of firms with positive firm-level FO1 within the sector. Frequency: Quarterly. Source: calculated by author using data from CSMAR (on B shares) and WIND (on H shares).

New Data after 2004

Forecast Error SUE	(Only used after 2004) We calculate this measure as the difference between actual earning and the average of reported EPS forecast for current fiscal year (forecast period indictor, FPI=1) in each quarter, scaled by the standard deviation of analysts' forecast on EPS. We take the value-weighted average SUE across all firms in each sector to obtain the sector-level measure. Frequency: Quarterly. Source: I/B/E/S.
Number of analysts	(Only used after 2004) Number of analysts that reported forecasts for a given firm in each quarter. We take the value-weighted average number of analysts across all firms in each sector to obtain the sector-level measure. Frequency: Quarterly. Source: I/B/E/S.
Analyst forecast dispersion	(Only used after 2004) We calculate this measure as the standard deviation of reported EPS forecast for Fiscal year 1 (forecast period indictor, FPI=1) in each quarter, standardized by the absolute value of average forecast for a given firm in each quarter. We take the value-weighted forecast dispersion across all firms in each sector to obtain the sector-level measure. Frequency: Quarterly. Source: I/B/E/S.
Institutional Ownership	(Only used after 2004) Following the Ferreira, Miguel and Matos (2008), for non-US firms, institutional ownership is calculated as the maximum of 13f reported holdings and fund holdings over total shares outstanding. For US firms, IO is calculated as the aggregate of 13f holdings and non-13f fund holding, divided by total shares outstanding. Frequency: Quarterly. Source: Factset Lion Shares.
Domestic Institutional Ownership	(Only used after 2004) Domestic Institutional Ownership is the proportion of total shares outstanding held by domestic institutions. Frequency: Quarterly. Source: Factset Lion Shares.
Foreign Institutional Ownership	(Only used after 2004) Foreign Institutional Ownership is the proportion of total shares outstanding held by foreign institutions. Frequency: Quarterly. Source: Factset Lion Shares.

A3. Portfolio Formations

We split the whole sample of firms with available quarterly earnings into portfolios based on their state ownership (SO), international accessibility (IA, whether a firm has B share, H share or ADR), and zeros (Illiquidity).

A3.1 State ownership and International accessibility portfolios

We formed 4 state ownership portfolios based on quarterly firm-level SO: 0%, 0-10%, 10%-50% and >50%, and 2 portfolios based on firm-level IA1 (0, and >0). Since these two variables are only available for Chinese firms, we only form the portfolios for China. After the SO portfolios and IA portfolios are formed, within each portfolio, we recalculate all the sector/portfolio-level variables for China. The calculation procedure for China is as follows: among all the variables, sector concentration ratio, sales growth, earnings growth and earnings growth volatility are calculated as the weighted sum of the corresponding sector-level variables, using the market share of the sector in the portfolio as weight. For the other variables, we simply use the weighted average of the corresponding firm-level variables, using the lagged firm market value as weights.

Next, we match each China portfolio with a US portfolio benchmark, which has the same sector composition. For example, for each portfolio in China, the portfolio EY is calculated as $EY_t^{CN} = \sum_i VW_{i,j,t}^{CN} EY_{i,j,t}^{CN}$, which is the weighted average of EY of every firm i that belongs to this portfolio. Then for each sector j, we sum up the weights and get the sector-level weight $VW_{j,t}^{CN} = \sum_i VW_{i,j,t}^{CN}$. For the next step, we use the sector level weight to form the US benchmark as $EY_t^{US} = \sum_j VW_{j,t}^{CN} EY_{j,t}^{US}$. We carry out this procedure for all the variables for the benchmark US portfolios.

A3.2 Illiquidity portfolios

We formed 2 illiquidity portfolios based on quarterly firm-level zeros: ≤ country median and > country median of zeros. Since both China and US have this calculated variable, zeros, we can form the two illiquidity

portfolios for both China and US, based on quarterly medians of zeros for China and US, respectively. After the illiquidity portfolios are formed, within each portfolio, we recalculate all the sector/portfolio-level variables for China and US. Among all the variables, sector concentration ratio, sales growth, earnings growth and earnings growth volatility are only available at sector-level, thus we first need to recalculate these variables in a "within-portfolio" sector-level. More specifically, we form the sectors using only the firms within each portfolio and only use the firm-level data of these firms to calculate "within-portfolio" sector-level variables. Then for the China illiquidity portfolios, sector concentration ratio, sales growth, earnings growth and earnings growth volatility are calculated as the weighted sum of the corresponding "within-portfolio" sector-level variables, using the market share of the "within-portfolio" sector in the portfolio as weight. For the other variables, we simply use the weighted average of the corresponding firm-level variables, using the lagged firm market value as weights.

Next, we match each China portfolio with a US portfolio benchmark, which has the same "within-portfolio" sector composition. For example, for each portfolio in China, the portfolio EY is calculated as $EY_t^{CN} = \sum_i VW_{i,j,t}^{CN} EY_{i,j,t}^{CN}$, which is the weighted average of EY of every firm i that belongs to this portfolio. Then for each sector j, we sum up the weights and get the sector-level weight $VW_{j,t}^{CN} = \sum_i VW_{i,j,t}^{CN}$. For the next step, we use the sector level weight to form the US benchmark as $EY_t^{US} = \sum_j VW_{j,t}^{CN} EY_{j,t}^{US}$, where $EY_{j,t}^{US}$ is the "within-portfolio" sector-level earnings yield. We carry out this procedure for all the variables for the benchmark US portfolios.

A4. Model selection: general-to-specific search algorithm (PcGets procedure)

Table A3 Model selection: general-to-specific search algorithm

Steps	Significance Levels
1 Estimate a general model with all variables (M1)	
a. Test significance of individual coefficient estimates: t-test. If all coefficients are individually significant, M1 is the final model.	0.025
b. Test M1 against the null of "all coefficients are zero" and the null of "all coefficients but intercept are zero": F-test. If the null is not rejected, M1 is the final model.	0.500
2 Pre-search tests	
a. Top-down tests. Rank the p-values of all coefficients in M1 from largest to smallest. Test joint significance of expanding list of coefficient estimates from largest p-value (least significant) to smallest p-value (most significant): F-test. If F-test is not rejected, remove variables on the current list. (M2)	0.500
b. Repeat top-down tests. Estimate M2 and rank the p-values of all coefficients from largest to smallest. Test joint significance of expanding list of coefficient estimates from largest p-value (least significant) to smallest p-value (most significant): F-test. If F-test is not rejected, remove variables on the current list. (M3)	0.250
c. Bottom-up tests Rank the p-values of all coefficients in M3 from smallest to largest. Test joint significance of decreasing list of coefficient estimates from smallest p-value (most significant) to largest p-value (least significant): F-test. If F-test is not rejected, remove variables on the current list. (M4)	0.025
3 Multiple-path tests	
a. Estimate M4. If all estimates are individually significant, M4 is the final model.	0.025
b. Otherwise, initiate search paths. Remove blocks of variables with increasing p-values of t-statistics and reestimate the model: remove one insignificant variables each time until all insignificant variables are removed and commenced a path.	
c. Repeat step 3b as long as insignificant variables survives.	0.025
d. The algorithm arrives to a terminal model if all coefficients are individually significant: t-test (M5)	0.025