Investor Sentiment and the A-Share Premium in China*

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We document a significant positive relationship between the price premium of A-shares over B shares in China and the contemporary sentiment gap of the two share markets. Among the twelve explanatory factors observed, the sentiment gap shows the strongest ability in explaining the premium in Shanghai and the second strongest in Shenzhen. Furthermore, the change in the premium also show similar positive relationship with the contemporary sentiment gap. Finally, we construct new sentiment indices by accommodating the premium. The premium captures a sizable portion of the variation of sentiment indices of boards comprising 44% of stocks listed in China. As a result, distinct from prior research, our analysis explores the role of the premium as a proxy of investor sentiment in boards consisting of shares beyond the A and B shares issued by the same firms, thereby enhancing the understanding of the premium.

JEL Classifications: G10, G11, G19
Keywords: A-share premium; Investor sentiment; Retail investors; Chinese stock market

*We appreciate the helpful comments and suggestions from colleagues at our respective universities. All remaining errors are ours.

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1. Introduction

Prior research found a common phenomenon in emerging markets that shares without foreign ownership restriction are normally traded at higher prices than those with the restriction (e.g., Bailey *et al*., 1999). In other words, foreign investors have to pay foreign premiums. By contrast, in the Chinese stock market, a reverse phenomenon--local premiums--takes place. Specifically, in China, two classes of shares, A and B shares, are listed separately. Initially, domestic investors were permitted to trade only in A shares, and were foreign investors only in B shares. What draws investors' attention is a significant premium in A-share prices over those of B-shares. In other words, contrary to foreign premium in other emerging markets, a local premium manifests in China.[1] Note that the A and B shares are issued by the same firms, and shareholder rights of the two shares are generally identical in terms of voting and profit sharing. Furthermore, the local premium has survived the relaxation of trading restrictions,[2] which happens on February 19, 2001, with the introduction of domestic investors to the B-share market, and on November 5, 2002, with qualified foreign investors to the A-share market.

Although many articles have investigated the potential sources of the peculiar Chinese phenomenon, the results are still inconclusive. We began our investigation by testing for the explanatory ability of a new driving force—the difference in investor sentiment between the two share markets. Next we examine the role of the A-share premium as a sentiment factor by testing whether the A-share premium is a good proxy for investor sentiment in different share boards.

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[1] The so-called unrestricted and restricted shares do not completely fit to the stock trading mechanism in China. Generally, unrestricted trading shares are traded freely by both local and foreign investors, yet restricted shares only by locals (Bailey *et al*., 1999). In China, however, there is no completely unrestricted shares because both A and B shares are restricted to some extent. The A shares are initially restricted to locals and later opened to qualified foreigners but still dominated by locals, whereas the B shares are opened in a reverse sequence; they are first restricted to foreigners and then opened to locals but remain overwhelmed by foreigners.

[2] Note that Table 1 shows a sharp declination of the A-share premium in the SHSE from 83% to 47% on average since January 1, 2001, which is around the time when domestic investors were permitted to enter the B-share market, i.e., February 19, 2001.

The existing literature has suggested several potential driving forces of the premium. First, the most widely advocated rationale is the information asymmetry that foreign investors are less informed than domestic investors due to, for example, linguistic and cultural barriers and difficulty in accessing local information (e.g., Brennan and Cao, 1997; Choe *et al*., 2001; Hau, 2001). The information disadvantage is exacerbated in the Chinese stock markets where information transparency and investor protection are relatively weak (Chakravarty *et al*., 1998). Doukas and Wang (2013), however, propose an inverse information asymmetry that sophisticated foreign investors have greater access to valuable firm-specific information than domestic investors due to the fact that the majority of the latter are naïve retail investors. Consequently, the premium merely reflects overpricing driven up by naïve individual investors. Second, Bailey (1994) and Fermald and Rogers (2002) find the contribution of limited alternative investment vehicles faced by domestic investors to the premium, whereas foreign investors do not confront such limitations. Third, Ma (1996) reports a relationship between investors' risk preference and the A-share premium. Fourth, Bailey (1994) and Chen *et al*. (2001) discover a positive correlation between illiquidity of the B shares and the premium. Finally, based on the assumption of a positive relationship between turnover and speculative trading, Mei *et al.* (2009) show that the premium increases with turnover of A shares, implying that the premium is to some extent rooted in speculative trading in the A-share market.[3]

Turning to the investor sentiment literature, it is commonly contended that investor sentiment comprises an irrational demand that is not justified by fundamental perspectives, thus causing a deviation of stock prices from fundamentals that is not efficiently corrected by binding arbitrage from rational investors (Shleifer and Summers, 1990; De Long *et al*., 1990, 1991; Shleifer and Vishny, 1997). Normally, compared with institutional investors, naïve

[3] Discussion of other rationales can be found in Bailey (1994), Chen *et al*. (2001), Cumming *et al*. (2016), Ding *et al*. (2018), Sun and Tong (2000), and Tong and Yu (2012), among others.

retail investors are more likely to display this irrational demand (see e.g., Daniel *et al*., 2002; Baker and Wurgler, 2007). In the Chinese stock market, the predominance of naïve retail investors in A-share trading and of sophisticated foreign institutions in B-share trading suggests that sentiment-driving trading in the A-share market is probably stronger than that in the B-share market. Therefore, we predict a positive relationship between the A-share premium and the concurrent sentiment gap between the two share markets.

By examining the A and B shares of the same firms, we discover a significant positive correlation between the A-share premium and concurrent difference in investor sentiment between the two shares in the Shanghai (SHSE) and Shenzhen (SZSE) stock exchanges jointly or individually.[4] Among the twelve factors examined, the sentiment gap shows the strongest ability in explaining the A-share premium in Shanghai and the second strongest in Shenzhen. The results hold in sub-period analysis. Besides, the change in the premium also show similar positive relationship with the concurrent sentiment gap. Furthermore, we compute new sentiment indices that accommodate the A-share premium. The premium capture a sizable portion of the variation of the new sentiment indices in each of the four markets: the B share market in SHSE and SZSE, respectively, small-and-medium A share in SZSE, and ChiNext A-share in SZSE. Jointly, these markets are composed of 44% of stocks in China.

This article makes several contributions to the related literatures. First, the ability of the sentiment gap in explaining the A-share premium has been explored by no one. Our analysis fills this void. Second, we also investigate the relationship between the sentiment gap and change in the premium, which again has done by no one. Thirdly, the existing studies of the A-share premium focus solely on the rationales of the premium. To our best knowledge, this study is the first to explore the role of the A-share premium as a sentiment factor in markets

[4] The two exchanges constitute the Chinese stock market.

composed of shares beyond the A and B shares of the same firms. Note that the number of stocks with issuance of both A and B shares are 42 and 36 on average in Shanghai and Shenzhen, respectively. Thereby, the number of stocks with B shares plus that with corresponding A shares is approximately 7% of the total number of stocks with listed shares in China.[5] On the other hand, the proportion of the number of stocks of which the premium is a good proxy for investor sentiment sharply soars to 44%. As a result, the importance of the A-share premium dramatically increases when the premium itself is utilized as a sentiment proxy.

The paper is structured as follows. The following section describes the hypotheses developed in the study. Section 3 presents the data and methodology. Section 4 highlights empirical results. Section 5 concludes the paper.

2. Hypotheses Development

The impact of investor sentiment on trading activities is expected to be stronger in the A-share market than in the B-share market on the basis of stronger predominance of retail investors in the former market than in the latter. Note that though domestic investors with foreign currency deposit accounts have been permitted to enter the B-share market since February 19, 2001, holding foreign currency is still subject to stringent foreign exchange control. This hinders their holdings of foreign currency and also their trading in the B shares. Therefore, the B-share market is still dominated by foreign sophisticated institutions and so is the A-share market by domestic retail investors (Hou and Lee, 2014). Accordingly, the difference in stock prices between the two shares should be positively correlated to the difference in contemporary investor sentiment between the two share markets. In addition, we conjecture the relationship also hold for the change in the premium. Finally, we expect the

[5] $\frac{(42+36)*2}{42+36+840+476+520+426}$ = 7%, where 42 and 36 in the numerator/denominator are the mean number of stocks with B shares listed on the two respective exchanges, and the double number takes into accounts both B and the counterpart A shares. The other numbers in the denominator are the mean number of stocks with A-shares listed on various boards of the two exchanges. All the data can be found in Panels A and B of Table 1.

A-share premium itself to be a proxy for investor sentiment in small size A share boards since the existing sentiment research discovers higher sentiment-sensitivity of hard-to-value stocks, which include small size stocks (e.g., Baker and Wurgler, 2006). In China, there are various boards of A shares. In particular, in Shanghai, there is only one board of A shares--the main board, whereas in Shenzhen there are three A-share boards: the main, small-and-medium, and ChiNext boards.[6] It is worthy to mention that the A shares with B-shares of the same firms are normally listed on the main board in Shanghai and small-and-medium board in Shenzhen, where the former are composed of larger firms with market capitalization of 18.14 billion of RMB on average in our sample and the latter of 7.34 billion of RMB (see Panel B in Table 1). As a result, we expect the premium is a sentiment proxy for the small-and-medium A share board in SZSE.

H1. The A-share premium is positively correlated with the concurrent difference in investor sentiment between the A and B share markets.

H2. The change in the A-share premium is positively correlated with the contemporary sentiment gap of the two share markets.

H3. The A-share premium captures a sizable portion of the variation of investor sentiment in the small-and-medium A share board in Shenzhen.

3. Data and Methodology

3.1. Data Description and The A-Share Premium

Since the tests relative to H1 and H2 focus on the A-share premium of individual stocks, the sample is composed only of B shares and the A shares of the same firms, of which both shares are listed on either the SHSE or SZSE.[7] To test H3, our sample extends to different A share boards on the two exchanges. The sample periods are July 1997 to December 2018,

[6] Beyond our sample period, in July 22, 2020, a new A-share board launched in the SHSE, the Sci-Tech Innovation Board.

[7] There are no financial firms having issued both A and B shares. Accordingly, our sample does not consist of financial stocks.

April 1999 to October 2017, January 2006 to October 2017, and May 2011 to October 2017 for (1) the B and A shares on the SHSE, (2) the B and main-board A shares on the SZSE, (3) the small-and-medium-board A shares on the SZSE, and (4) the ChiNext-board A shares on the SZSE,[8] respectively. Datasets employed include Census and Economic Information Center (CEIC), China Stock Market & Accounting Research Database (CSMAR), RESSET from Beijing Gildata Resset Data Tech Co., Ltd., and WIND from Wind Information Inc. Details of sources for each data item can be found in Table 1 as well as Tables A.1 and A.2 in the Appendix.

The A-share premium is estimated by applying the following equation:

$$Prem_{it} = \frac{\Pr ice_{it}^{A} - \Pr ice_{it}^{B}}{\Pr ice_{it}^{A}}, \quad (1)$$

where $Prem_{it}$ denotes the A-share premium for stock i at the end of month t, and $Price_{it}^{A}$ and $Price_{it}^{B}$ are currency adjusted prices for the A and B shares i, respectively, at the end of month t. Note that it is necessary to take into account differences in currency, as the A shares are traded in RMB, and the B shares in USD on the SHSE and in Hong Kong dollars on the SZSE (Doukas and Wang, 2013).

Panel A in Table 1 shows the summary statistics for individual firms and shares, whereas Panel B documents those for individual A shares from different boards of the two exchanges. Several features are worth of discussion. First, consistent with prior research (e.g., Chan *et al.*, 2008; Karolyi *et al.*, 2009), the A-share premium dramatically decreased in Shanghai from an average of 82% before 2000 to 47% after it, where the beginning of 2001 is about the time when domestic investors were permitted to enter the B-share market, i.e., February 19, 2001.[9]

[8] Although, after decades of suspension, the SHSE re-launched its operation on December 19, 1990 and the SZSE began operations on December 1, 1990, our sample period does not include their early years due to the unavailability of full-range of data and fewer numbers of stocks. In addition, data for the SZSE ends in October 2017 owing to the fact of unavailability of the data for a crucial sentiment factor after it, where the factor is the number of new share-accounts opened by retail investors.

[9] By contrast, the decrease of the premium was much milder in Shenzhen than in Shanghai; the premium in

To account for this substantial change, in the sub-period analysis, we use 2000 as a breakpoint, partitioning the sample period into two sub-periods: the sub-period before 2000 and the one after it. Second, there are average 42 and 36 firms having issued both A and B shares on the SHSE and SZSE, respectively. Third, the number of tradable A shares is larger than that of tradable B shares on each of the two exchanges, and so is turnover. As such, following the existing literature, we use measures related to them as control variables in regression analysis.

[Insert Table 1 here]

3.2. Investor Sentiment Indices

To test H1 and H2, we construct four monthly investor sentiment indices for the A and B share markets. The four sentiment indices are denoted as Sent(SHSE-A), Sent(SHSE-B), Sent(SZSE-A), and Sent(SZSE-B). To estimate the sentiment indices, we follow the principle component analysis (PCA) developed by Baker and Wurgler (2006, 2007), using three variables commonly employed by prior research as proxies for investor sentiment in the Chinese stock market (Chen *et al*., 2014; Han and Li, 2017). The three proxies are the number of new share-accounts opened by retail investors in each exchange (AC), the aggregate abnormal turnover ratio (ANTO), and the aggregate PE ratio (PE) (Chen *et al*., 2014; Han and Li, 2017). In particular, AC is disclosed in a monthly basis by each of the two exchanges. The aggregate abnormal turnover (ANTO) is computed by value-weighted individual stocks' abnormal turnover.[10] The abnormal turnover is computed by dividing the mean of daily turnover during the prior 20 days to the counterpart mean of prior 250 days, where daily turnover is the number of shares traded during a day to the total number of tradable and non-tradable shares at the end of the day (Liu *et. al*., 2019). The aggregate PE

Shenzhen shrinks from 52% before 2000 to 50% after it.

[10] Individual stocks' value weights are estimated by market capitalization of total outstanding shares including both tradable and non-tradable shares (Liu *et. al*., 2019).

ratio (PE) is estimated by weighting individual firms' PE ratio by outstanding shares including non-tradable shares.[11]

The precise procedure for estimating the composite sentiment indices includes two phases. In the first phase, we refine the raw values of the three variables to prepare for the PCA in the second phase. The refining process comprises two steps. First, we remove time-series trend unrelated to investor sentiment by scaling the three variables by their prior 6-month moving average (Han and Li, 2017). Second, to filter out the potential impact of macroeconomic conditions on the variables, we orthogonalize the three variables by regressing each on a set of macroeconomic factors. Consequently, the resultant residuals consist of only pure sentiment-related components (Baker and Wurgler, 2006, 2007; Chen *et al*., 2014; Han and Li, 2017; Verma and Soydemir, 2009). The macroeconomic factors include: (1) the most recently announced growth of industrial production, (2) the growth of the money supply in terms of the M1B, measured by subtracting the M1B at month-*t* by the M1B at the same calendar month in the prior year and then scaling the difference by the latter M1B, (3) the exchange rate of the RMB per US dollar, measured at the end of month-*t*, and (4) the short-term interest rate proxy by the mean of previous 30 days' interbank loan rates (Chen *et al*., 2014; Han and Li, 2017). Related summary statistics are disclosed in Table A.1 in the Appendix.

The second phase comprises three steps to conduct the PCA (Baker and Wurgler, 2006, 2007; Verma and Soydemir, 2009; Chen *et al*., 2014; Han and Li, 2017). First, we standardize the three residual variables with a mean of 0 and a standard deviation of 1. Second, by solving the covariance metric, we obtain the eigenvalue and eigenvector. Finally, we construct a linear combination of the three residual variables with loadings from the eigenvector composed of the largest eigenvalues, which reflect the largest coverage of the

[11] The aggregated PE is retrieved from RESSET.

variation of investor sentiment by the three residual variables. The linear combination thus constitutes a composite sentiment index. The four composite investor sentiment indices are as follows:

$$\text{Sent(SHSE-A)} = 0.6010 \times \text{PE} + 0.6161 \times \text{AC} + 0.5092 \times \text{ANTO}$$

$$\text{Sent(SHSE-B)} = 0.5901 \times \text{PE} + 0.4848 \times \text{AC} + 0.6453 \times \text{ANTO}$$

$$\text{Sent(SZSE-A)} = 0.5754 \times \text{PE} + 0.6160 \times \text{AC} + 0.5381 \times \text{ANTO}$$

$$\text{Sent(SZSE-B)} = 0.6897 \times \text{PE} + 0.2461 \times \text{AC} + 0.6810 \times \text{ANTO}$$

Apparently, all the three variables document positive relationship with investor sentiment and consistently capture a substantial proportion of variation of all the four investor sentiment indices, in line with prior findings for the main-board A shares that the three variables are plausible proxies for investor sentiment (Chen *et al*., 2014; Han and Li, 2017).

To test H3, we estimate new sentiment indices that accommodate market-wide A-share premiums as the fourth proxy of investor sentiment in China. The market-wide premium (Prem^{M}) is computed by an equation similar to equation (1) but with prices of the A and B shares in equation (1) replaced with respective market composite indices of A and B share in Shanghai and Shenzhen, respectively.[12] It is worth mentioning that, in the B-share markets, we use reciprocals of the market-wide premiums (RPrem^{M}) to obtain *positive* loadings, the same sign of the corresponding loadings in the A-share markets. In addition, when estimating the sentiment indices in markets of all A or B shares, we use the market-wide PE (PE^{M}) and ANTO (ANTO^{M}), of which estimation is based on all shares in the respective A and B share market. Furthermore, we employ the board-specific PE^{BD} and ANTO^{BD} when our interest turns to the sentiment indices of various boards of A shares in Shenzhen.

3.3. Multivariate Regression Models

To test H1 an H2, we regress the A-share premium with respect to the contemporary

[12] The market-wide A-share premium is compiled by the WIND. Note the A-share market composite index in the SZSE comprises all A shares from different boards.

sentiment gap and control variables. To compare the ability of each independent variable in explaining the A share premium, we standardize both dependent and independent variables, i.e., subtracting the time-series mean from raw values of each variable and scaling the differences by the standard deviation of the variable. Consequently, a standardized coefficient estimate implies the changes (in terms of number of standard deviations) in the A-share premium in response to one-standard-deviation changes in the independent variable. Therefore, the impact of an independent variable on the A-share premium increases with the absolute value of its standardized coefficient estimate. Furthermore, instead of winsorizing variables, standardized regressing is utilized to free our results from the impact of outliers.

To avoid the small sample problem addressed by Stambaugh (1999), we use the bootstrap method to estimate *t*-values (Huang *et al*., 2015). Standard errors are clustered by both firm and year. Adopted from Baker *et al*. (2012), we run the following equation.

$$Prem_{it} = a + b\,(Sent_t^A - Sent_t^B) + c\,(Prem_{it\text{-}1}) + \sum_{j=1}^{N} d_j\, Z_{ijt} + \varepsilon_{it} \qquad (3)$$

Where $(Sent_t^A - Sent_t^B)$ is the difference in investor sentiment between the A and B shares of the same firms, $Prem_{it\text{-}1}$ is the lagged A-share premium to purge off the impact of autocorrelation across the premium since prior research identified a time-series correlation of price discrepancy between twin shares (Baker *et al*., 2012), and Z_{ijt} is a vector composed of values for the *j*th control variable (j = 1, 2…, N, where N=11) at the end of month *t*. Note that for robustness check, we duplicate the above test with replacement of the premium in the above equation with the change in the premium, or $\triangle Prem_{it}$.

The H1 suggests a positive regression coefficient for the difference in investor sentiment, or a positive *b*. Besides the lagged premium, among the remaining eleven control variables comprising the vector Z, the first control variable is individual stocks' informativeness ratio estimated by informativeness (INFM) of individual A-shares to that of the B-share

counterparts, or $(\frac{INFM_A}{INFM_B})$, where $INFM = \frac{1}{SYNCH}$ and $SYNCH = \frac{R_{sq}^2}{1-R_{sq}^2}$, of which *SYNCH* stands for share price synchronicity (Morck *et al*., 2000).[13] We test the informativeness effect that the A-share premium is attributable to more information possessed by shareholders of A-shares than those of B-shares, or the coefficient estimate should be positive (e.g., Chan and Hameed, 2006). By contrast, the coefficient would be negative if it is the other way around that foreign investors possess more information than domestic investors (Doukas and Wang, 2013). Second, we estimate the ratio of tradable A shares to the sum of tradable A and B shares, or $(\frac{NStk_A}{NStk_A+NStk_B})$. The ratio is for testing the limited investment instrument hypothesis that the A share premium is due to less investment instruments for locals relative to foreigners. As such, the premium is an inverse function of the ratio, i.e., the coefficient estimates should be negative. Third, some researchers suggested the illiquidity of B-shares contributing to the premium (Chen *et al*., 2001). If the phenomenon manifests in our sample, the coefficient estimates for the ratio of trading volume of individual B-shares to that of corresponding A-shares, i.e., $(\frac{Vol_B}{Vol_A})$, should yield negative values. Fourth, we utilize the natural logarithm of one plus turnover of individual A shares (i.e., $Ln(1+TO^A)$) to test the speculative trading hypothesis advanced by Mei *et al*. (2009). Positive coefficient estimates are expected to confirm the role of A-shareholders' speculative trading in explaining the A-share premium.

Fifth, among others, a feature of Chinese listed firms is the presence of sizable state-ownership. In our sample stocks that both the A and B shares of the same firms, the proportion of state-owned shares to total outstanding shares (i.e., the state-ownership, or $StateO_{it}$) is 22% on average in both Shanghai and Shenzhen, respectively (see Panel B of Table A.2 in the Appendix). Moreover, the existing literature reported deeper shrink of the premium post 2000 among high state-ownership firms, a phenomenon documenting a

[13] Details of the computation can be found in Table A.2 in the Appendix.

potential positive link between state-ownership and the A-share premium (Karolyi *et al*., 2009). Hence, state-ownership is employed as a control variable. Sixth, we compute total and systematic risk of individual A shares against those of B-shares, or $(\frac{\sigma_A}{\sigma_B})$ and $(\frac{\beta_A}{\beta_B})$, to investigate whether the A-share premium relates to exposure to different risk levels by the two classes of shares (Ma, 1996). Finally, our control variables also include firm size (*Size*), book-to-market ratio (*BM*), liability ratio (*Liab*), and return on equity (*ROE*) since they are associated with expected stock returns or leverage levels, and thereby used by prior A-share premium studies as control variables (Bailey *et al*., 1999; Doukas and Wang, 2013). Details of computation of the control variables and related summary statistics can be found in Table A.2 in the Appendix.

4. Empirical Results

4.1. Relationship between the Investor Sentiment Gap and A-share Premium

Table 2 reports regression estimates with no control variables, whilst Table 3 documents those with control variables. Confirming H1, results in Table 2 shows a prevalently strong positive relation (mostly with a significance level of 1% or 5%) between the sentiment gap and A-share premium among stocks in the Shanghai and Shenzhen markets as a whole or in each of the two markets.

[Insert Table 2 here]

With respect to the conditional evidence shown in Table 3, several findings are worthy of discussion. First and most importantly, likewise the unconditional results confirming H1, conditional ones show a strong, prevalent positive relationship between the sentiment gap and A-share premium for shares in the Shanghai and Shenzhen markets jointly or individually. Second, adding control variables only slightly decreases the impact of sentiment gap on the

A-share premium as the standardized coefficients of the sentiment gap in Table 2 (or 0.068, 0.069, and 0.068, respectively) only slightly contract to the conditional counterparts of 0.062, 0.064, and 0.058, respectively. Apparently, control variables do not critically influence the relationship. Third, among the twelve independent variables (i.e., the sentiment gap plus eleven control variables excluding the lagged A-share premium), the sentiment gap shows the strongest ability in explaining the A-share premium in Shanghai and Shenzhen jointly, because its standardized regression coefficient of 0.062 is the largest in absolute values (at a significant level of 1%, see the second column). Furthermore, the sentiment gap in Shanghai and Shenzhen respectively documents the strongest and second strongest explanatory power with regression coefficient estimates of 0.064 and 0.058 (see the third and fourth columns), both at 1% significant level. In other words, in response to one-standard-deviation difference in the sentiment gap, the A-share premium differs by approximately one-sixteenth and one-seventeenth[14] standard deviation in Shanghai and Shenzhen, respectively.

[Insert Table 3 here]

Fourth, the second largest regression coefficient in absolute values in Shanghai and the largest one in Shenzhen are -0.049 and -0.065, respectively, for the ratio of turnover of the two classes of shares (proxy for the illiquidity effect of B shares) and the ratio of outstanding A shares to the sum of the outstanding shares of the two shares (representing the hypothesis of limited investment instruments of A shares). In line with evidence of prior research, other factors showing significant positive association with the premium include informativeness of domestic investors, speculative trading of A-share investors, state-ownership, and total/systematic risk. On the other hand, factors with strong negative correlation with the premium are size and book-to-market ratio, also in accordance with the existing findings (Doukas and Wang, 2013). Fifth, the premium is positively associated with

[14] $0.064 \fallingdotseq \frac{1}{16}$ and $0.058 \fallingdotseq \frac{1}{17}$.

the lagged A-share premium, reminiscent a similar positive autocorrelation effect among price difference of twin shares reported by Baker *et al*. (2012).

In brief, the sentiment gap consistently explains the A-share premium in the Shanghai and Shenzhen stock markets jointly or individually.

4.2. Robustness Check

We conduct two robustness check; sub-period analysis as well as the relationship between the sentiment gap and change in the A-share premium. As mentioned previously, the premium dramatically shrinks since 2001, we therefore use 2000 as the breakpoint for the sub-period analysis. In Table 4, we find results for the periods of beginning-2000 and 2001-end do not materially different from those for the whole sample period documented in Table 3.

[Insert Table 4 here]

Finally, as documented in Table 5, the change in the premium is as significantly associated with the sentiment gap as the premium is, consistent with H2.

[Insert Table 5 here]

4.3. New Sentiment Indices Accommodating the A-Share Premium

Prior sentiment studies have used a variety of measures as proxies for investor sentiment. After confirming an apparent positive relationship between the A-share premium and sentiment gap in the preceding sections, we further investigate whether the A-share premium itself is a proxy for investor sentiment in the Chinese stock markets. In addition to the typically used three-variable sentiment indices in China mentioned earlier, we construct new four-variable sentiment indices where the fourth variable is the market-wide A-share premium ($Prem^M$). As mentioned earlier, in the B-share markets, we use the reciprocal of the premium ($RPrem^M$) to obtain *positive* loadings.

The evidence shown in Panel A of Table 6 reveals a couple of aspects worthy of

discussion. Firstly, loadings of the number of new share-accounts recently opened (AC) are relatively smaller for the two B-share markets than those for the two A-share markets; that is, 0.3889 and 0.1534 in the two exchanges are smaller than the A-share counterparts of 0.6163 and 0.6088, respectively. The discrepancy is consistent with the instinct that institutions are major investors in the B-share markets and the number of new share-accounts recently opened by *institutions* is unlikely to change dramatically in accordance with sentiment states. Secondly, as the loadings of AC are smaller in the B-share markets than in the A-share markets, the loadings of the premium are inversely larger in the B-share markets than in the A-share markets, or 0.4919 and 0.4348 larger than 0.0334 and 0.1190, respectively. The opposite trend of loadings of the two factors implies that the AC partially absorb the ability of the premium to capture variation of sentiment. However, when the AC's relationship with sentiment is weak, the premium is able to replace the role of the AC, and thus loadings of the premium are larger in the B-share markets than in the A-share markets.

[Insert Table 6 here]

To test H3, we further investigate evidence in each board of SZSE. Fitting with the partition of A shares by boards, we use board-specific PE^{BD} and $ANTO^{BD}$ in Panel B, instead of the market-specific PE^{M} and $ANTO^{M}$ in Panel A. Provided by the WIND, the PE^{BD} of each board is the ratio of aggregate market capitalization (including tradable and non-tradable shares) of all stocks on the board to aggregate earnings of these stocks. The $ANTO^{BD}$ of each board is the value-weighted abnormal turnover of individual shares, where details of computing abnormal turnover of individual shares are provided in earlier section. For the two remaining variables, AC and $Prem^{M}$ (or $RPrem^{M}$), we keep using their market-specific values.

Consistent with H3, results in Panel B reveal the capability of the A-share premium in capturing a substantial portion of variation of the investor sentiment in the small-and-medium board of SZSE with a positive loading of 0.4120, which is close to the corresponding loading

of abnormal turnover of 0.3592. Note that the premium can also capture a sizeable variation of investor sentiment in the ChiNext board with a loading of 0.3326. In addition, again, the loading of the premium is smallest for the main-board shares relative to shares of the other two boards, whereas the loading of AC is largest for the main-board shares, reminiscent the contrary trend in Panel A,

5. Concluding Remarks

Contrary to the stylized foreign premium occurred in most other emerging stock markets with similar segmentation mechanism, the surface of local premium is a distinct feature in the Chinese stock market that prices of resident-dominated A shares are generally higher than prices of foreigner-dominated B-shares in spite of the fact that both shares are issued by the same firms and thereby granted identical voting rights and profit sharing. Moreover, with respect to rationales of the price discrepancy in China, prior research uncovered mixed results. The inconclusive evidence motivates our exploration of the role of a new factor--the concurrent investor sentiment gap between the two classes of shares--in driving the A-share premium. We document a significant positive relationship between the A-share premium and the concurrent sentiment gap between the two classes of shares in the Shanghai and Shenzhen stock markets jointly or individually. Actually, among the twelve explanatory variables investigated, the sentiment gap shows the strongest ability in explaining the premium in Shanghai and the second strongest in Shenzhen. Specifically, in response to one-standard-deviation difference in the sentiment gap, the premium differs by approximately one-sixteenth and one-seventeenth standard deviation in Shanghai and Shenzhen, respectively. Furthermore, the results survive sub-period analysis. Besides, the change in the premium show similar positive relationship as well. Finally, we construct new investor sentiment indices that accommodate the A-share premium. The loadings of the A-share premiums are positive and substantial in the B shares from each of the two exchanges, and the A-shares on

the small-and-medium and ChiNext boards in Shenzhen, respectively. Put another way, the A-share premium captures a substantial portion of the variation of the sentiment indices in these share markets, which comprises 44% of listed stocks in China, far higher than 7% of listed A and B stocks issued by same firms. Consequently, our findings enhance the importance of the premium to the Chinese stock market.

Our investigation can be extended to further contribution of the premium to asset pricing in the Chinese stock market, as well as to other emerging stock markets with similar segmentation mechanism. For instance, aside from China, Bailey *et al*., (1999) reported other ten such markets.[15] Those investigation warrants future research.

[15] The other ten countries are Indonesia, Korea, Malaysia, Mexico, Norway, Singapore, Switzerland, the Philippines, Taiwan, and Thailand (Bailey *et al*., 1999).

Appendix

Table A.1 Summary Statistics for Variables Used in Estimation of Investor Sentiment Indices

Reported in this table are summary statistics for variables used in computation of investor sentiment. There are two exchanges in the Chinese stock market: the Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE). Sample periods are July 1997 to December 2018 and April 1999 to October 2017 for the SHSE and SZSE, respectively. In particular, AC is the number of new share-accounts opened by retail investors in each month. ANTO is the value-weighted abnormal turnover of individual shares where abnormal turnover for individual shares are computed by dividing the mean of daily turnover during the prior 20 days to the corresponding mean during the prior 250 days, where daily turnover is the number of shares traded during a day to the total number of tradable and non-tradable shares at the end of the day. PE is estimated by weighting individual firms' PE ratio by total capitalization of A, B, and other classes of shares. Furthermore, macroeconomic factors used include: (1) the most recently announced growth of industrial production, (2) the growth of the money supply in terms of the M1B, measured by subtracting the M1B at month-*t* by the M1B at the same calendar month in the prior year and then scaling the difference by the latter M1B, (3) the exchange rate of the RMB per US dollar, measured at the end of month-*t*, and (4) the short-term interest rate proxy by the mean of the prior 30-day interbank offer rates.

	Mean	Median	Std. Dev.	Min.	Max.	Source
No. of new share-accounts opened by retail investors (AC):						
SHSE-A	760,478	376,200	1,055,929	-125,000	7,198,621	CEIC
SHSE-B	6,190	1,200	27,427	-602	289,700	CEIC
SZSE-A	963,783	451,379	1,403,365	11,801	8,747,451	CEIC
SZSE-B	4,184	961	19,619	-100,869	173,788	CEIC
Market-wide abnormal turnover (ANTO):						
SHSE-A	0.97	0.89	0.42	0.38	3.18	RESSET
SHSE-B	1.02	0.85	0.66	0.19	5.45	RESSET
SZSE-A	1.01	0.91	0.39	0.37	3.20	RESSET
SZSE-B	1.03	0.84	0.76	0.22	7.81	RESSET
Market-wide PE ratio (PE):						
SHSE-A	33.31	30.07	13.10	14.47	68.16	RESSET
SHSE-B	34.79	33.27	13.62	9.52	86.38	RESSET
SZSE-A	48.64	47.78	11.24	20.80	88.48	RESSET
SZSE-B	24.50	23.58	9.17	7.04	75.21	RESSET
Stock market index:						
SHSE-A	2,405.25	2,214.49	962.63	1,113.29	6,251.53	WIND
SHSE-B	192.31	205.44	109.11	24.44	494.58	WIND
SZSE-A	975.36	893.20	579.40	262.23	2,922.63	WIND
SZSE-B	555.11	537.40	359.96	55.36	1,542.18	WIND
Growth of industrial production (%)	11.45	10.95	4.84	-2.93	29.2	WIND
Growth of M1B (%)	14.59	14.5	6.69	1.2	38.96	WIND
Exchange rate of RMB per US dollar	7.34	7.01	0.86	6.10	8.31	WIND
Mean of prior 30-day interbank offer rates	3.60	3.15	1.68	1.04	10.8	WIND

Table A.2 Definitions and distributions of Independent Variables in Regression

Reported in this table are definitions and distributions of independent variables used in regression models.[16] There are two exchanges in the Chinese stock market: the Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE). Sample periods are July 1997 to December 2018 and April 1999 to October 2017 for the SHSE and SZSE, respectively.

Panel A: Definitions

Variable	Definition
$Sent_t^A - Sent_t^B$	Difference between the sentiment indices of the A- and B-shares of the same firms at the end of month *t*.
$Prem_{it-1}$	Lagged A-share premium with the premium calculated by $\frac{P_{it}^A - P_{it}^B}{P_{it}^A}$.
$(\frac{INFM_A}{INFM_B})_{it}$	The informativeness (*INFM*) of the A share of stock *i* relative to that of the B share of the same firm, where $INFM = \frac{1}{SYNCH}$, and $SYNCH = \frac{R_{sq}^2}{1-R_{sq}^2}$, of which *SYNCH* stands for stock price synchronicity (Morck *et al*., 2000). The R_{sq}^2 is estimated from the market index model, where monthly excess return on share *i* is the dependent variable and monthly market excess return is the independent variable. The estimation period is prior 12 months with a minimum requirement of 10 months (Chan and Hameed, 2006; Doukas and Wang, 2013).
$(\frac{NStk_A}{NStk_A + NStk_B})_{it}$	The number of tradable A share *i* relative to the aggregate of the tradable A share *i* and tradable B share *i* of the same firm at the end of month *t* (Doukas and Wang, 2013).
$(\frac{Vol_B}{Vol_A})_{it}$	Trading volume of the B share of stock *i* relative to that of the A share of the same firm, computed at the end of month *t* (Chen *et al*., 2001; Doukas and Wang, 2013).
$Ln(1+TO_{it}^A)$	Natural logarithm of one plus turnover of the A share of stock *i* over month *t*, where turnover of the A share is the number of A shares traded during month *t* over the outstanding A shares (including non-tradable shares) at the end of month *t* (Mei *et al*., 2009).
$StateO_{it}$	State ownership of stock *i* at the end of the preceding month, computed by the proportion of shares owned by the state to total outstanding shares including the A (tradable and non-tradable shares), B, and other classes of shares (Karolyi *et al*., 2009).
$(\frac{\sigma_A}{\sigma_B})_{it}$	Volatility of the A share *i* relative to the volatility of the B share *i*, where individual shares' volatility is computed by standard deviation of daily returns over month-*t* (Liu *et al*., 2019).
$(\frac{\beta_A}{\beta_B})_{it}$	Systematic risk of the A share *i* relative to the risk of the B share *i*, where beta of individual shares is estimated from the market index model in the basis of monthly returns of the prior 12 months, i.e., (*t*−11: *t*).
$Size_{it}$	Natural logarithm of the total market value, including A, B, and other classes of shares, of stock *i* at the last trading of the preceding month (Liu *et al*., 2019).
BM_{it}	Book-to-market ratio for stock *i*, estimated at the last trading day of the preceding month, with the most recently announced book value as the numerator and the denominator encompassing market values of A, B, and other classes of shares (Liu *et al*., 2019).
$Liab_{it}$	Liability ratio for stock *i* at the end of the preceding month, estimated by the ratio of liabilities to assets, where both of them are from the most recently announced financial reports (Karolyi *et al*., 2009).
ROE_{it}	Return-on-equity for stock *i*, estimated at the last trading day of the preceding month.

(*Continued*)

[16] Although being independent variables, the A-share premium over the preceding month of $t-1$ is omitted here because their distributions are resemble those for the dependent variable (i.e., the premium during month-*t*) already documented in Table 1.

Table A.2 (*Continued*)

Panel B: Distributions

	Mean	Median	Std. Dev.	Min.	Max.	Original data Source
$Sent_t^A - Sent_t^B$:						
SHSE	0.00	0.16	1.62	-18.36	2.94	See Table A.1
SZSE	0.00	0.07	2.11	-23.68	15.10	See Table A.1
$(\frac{INFM_A}{INFM_B})_{it}$:						
SHSE	528.20	2.76	20,750.71	0.00	1,600,946.00	CSMAR
SZSE	252.15	1.40	9,080.39	0.00	569,417.8̂8̂0̂	CSMAR
$(\frac{VOL_B}{VOL_A})_{it}$:						
SHSE	0.81	0.24	2.71	0.00	162.05	RESSET
SZSE	0.48	0.16	2.19	0.01	81.48	RESSET
$(\frac{NStk_A}{NStk_A+NStk_B})_{it}$:						
SHSE	0.48	0.52	0.24	0.06	0.97	WIND
SZSE	0.58	0.58	0.18	0.15	0.97	WIND
Ln(1+TO_{it}^A):						
SHSE	2.40	2.39	1.06	0.05	5.88	RESSET
SZSE	2.73	2.72	1.02	0.19	5.79	RESSET
$StateO_{it}$:						
SHSE	0.22	0.14	0.23	0.00	0.69	CSMAR
SZSE	0.22	0.16	0.24	0.00	0.75	CSMAR
$(\frac{\sigma_A}{\sigma_B})_{it}$:						
SHSE	1.38	1.26	0.78	0.01	32.14	CSMAR
SZSE	1.30	1.21	1.22	0.00	66.64	CSMAR
$(\frac{\beta_A}{\beta_B})_{it}$:						
SHSE	1.26	1.06	9.87	-138.51	874.99	CSMAR
SZSE	1.26	1.01	6.84	-52.36	431.45	CSMAR
$Size_{it}$ (Mil. RMB):						
SHSE	8,860	6,190	9,090	475	106,000	CSMAR
SZSE	7,050	4,370	7,480	395	71,700	CSMAR
BM_{it}:						
SHSE	0.25	0.22	0.17	-0.36	1.94	CSMAR
SZSE	0.24	0.21	0.25	-2.86	1.77	CSMAR
$Liab_{it}$:						
SHSE	0.60	0.48	0.64	0.00	10.34	CSMAR
SZSE	0.82	0.45	4.00	0.00	108.71	CSMAR

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Table 1 Summary statistics for characteristics of individual firms and shares

Panel A of this table reports summary statistics for individual firms and shares, and Panel B for individual A shares in different boards. There are two exchanges in the Chinese stock market: the Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE). The sample periods are July 1997 to December 2018, April 1999 to October 2017, January 2006 to October 2017, and May 2011 to October 2017 for (1) the A and B shares on the SHSE, (2) the main-board A and B shares on the SZSE, (3) the small-and-medium-board A shares on the SZSE, and (4) the ChiNext-board A shares on the SZSE, respectively. In Panel A, the A-share premium is estimated by the difference between end-of-month closing prices of A-shares and those of the B-shares of the same firms, and the difference is scaled by the A-share prices. The change in the A-share premium is computed by the difference of the premiums of two consecutive months. Monthly turnover is the number of shares traded in each month divided by the number of outstanding shares (including non-tradable shares) at the end of the month. Market capitalization of individual firms is the aggregate market capitalizations of A, B, and other classes of shares, where the market capitalization of each class of shares is the product of end-of-month closing prices and outstanding shares including non-tradable ones. Monthly returns are difference of end-of-month closing prices of two consecutive periods scaled by the price of the lead month, with adjustment of cash and stock dividends. In Panel B, market capitalization of individual firms (in different boards) is the total market capitalization of A, B, and other classes of shares of the same firms. Market capitalization for each board as a whole is the aggregate market capitalization of individual stocks. All data in Panel B is compiled by the WIND.

	Period	Mean	Median	Std. Dev.	Min.	Max.	Source
Panel A: Characteristics of individual firms and shares							
No. of firms having issued both A & B shares:							
SHSE	1997/07-2018/12	42	43	1.9719	37	43	WIND
SZSE	1999/04-2017/10	36	36	1.0679	32	36	WIND
A-share premium (%):							
SHSE	1997/07-2000/12	82.88	84.50	7.69	33.78	95.83	WIND
SHSE	2001/01-2018/12	47.41	48.65	14.42	0.07	85.07	WIND
SZSE	1999/04-2000/12	79.27	79.80	6.68	52.72	91.97	WIND
SZSE	2001/01-2017/10	47.48	48.81	12.77	-9.04	87.57	WIND
Change in the A-share premium (%):							
SHSE	1997/07-2000/12	0.04	-0.03	2.98	-17.55	15.20	WIND
SHSE	2001/01-2018/12	-0.23	-0.03	5.23	-33.91	38.01	WIND
SZSE	1999/04-2000/12	-0.23	-0.02	3.11	-12.25	9.69	WIND
SZSE	2001/01-2017/10	-0.22	0.00	5.18	-40.20	22.77	WIND
No. of tradable shares for individual firms (Mil. shares):							
SHSE-A share	1997/07-2018/12	383	166	552	7.94	11,800	WIND
SHSE-B share	1997/07-2018/12	225	185	191	33	1,950	WIND
SZSE-A share	1999/04-2017/10	309	175	398	15.40	4,100	WIND
SZSE-B share	1999/04-2017/10	176	113	169	26.10	877	WIND

(*Continued*)

Table 1 (*Continued*)

	Period	Mean	Median	Std. Dev.	Min.	Max.	Source
Monthly turnover for individual shares (%):							
SHSE-A share	1997/07-2018/12	18.43	9.89	24.89	0.05	355.82	RESSET
SHSE-B share	1997/07-2018/12	10.52	5.89	14.80	0.04	196.76	RESSET
SHSE-A share	1999/04-2017/10	24.21	14.18	27.97	0.20	325.77	RESSET
SZSE-B share	1999/04-2017/10	12.80	7.53	17.54	0.03	248.14	RESSET
Market capitalization for individual firms (Mil. RMB):							
SHSE	1997/07-2018/12	8,880	6,220	9,090	375	106,000	CSMAR
SZSE	1999/04-2017/10	7,110	4,390	7,560	382	71,700	CSMAR
Monthly returns for individual shares (%):							
SHSE-A share	1997/07-2018/12	1.34	-0.05	14.62	-65.81	267.21	CSMAR
SHSE-B share	1997/07-2018/12	1.54	-0.12	15.01	-61.13	184.46	CSMAR
SZSE-A share	1999/04-2017/10	1.37	-0.11	14.75	-52.55	225.99	CSMAR
SZSE-B share	1999/04-2017/10	1.66	0.00	16.67	-52.47	254.86	CSMAR

Panel B: Characteristics of A shares in different boards

Boards	Period	Mean	Median	Std. Dev.	Min.	Max.
No. of listed stocks:						
SHSE-Main board	1997/07-2018/12	840	852	254	353	1,443
SZSE-Main board	1999/04-2017/10	476	473	15	414	502
SZSE-Small and medium board	2006/01-2017/10	520	640	264	50	891
SZSE-ChiNext board	2011/05-2017/10	426	385	118	224	691
Individual shares' market capitalization (Bil. RMB):						
SHSE-Main board	1997/07-2018/12	18.14	4.13	96.40	0.11	5,768.80
SZSE-Main board	1999/04-2017/10	7.04	3.23	13.96	0.10	333.97
SZSE-Small and medium board	2006/01-2017/10	7.37	4.49	11.47	0.28	362.51
SZSE-ChiNext board	2011/05-2017/10	6.43	4.43	7.87	0.59	186.52
Market capitalization for each board as a whole (Bil. RMB):						
SHSE-Main board	1997/07-2018/12	14,504	16,445	12,060	794	41,214
SZSE-Main board	1999/04-2017/10	3,241	3,187	2,080	853	9,226
SZSE-Small and medium board	2006/01-2017/10	3,826	3,059	3,382	49	11,410
SZSE-ChiNext board	2011/05-2017/10	2,783	1,912	1,897	665	6,211

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Table 2 Unconditional relationship between the A-Share premium and sentiment gap
This table reports standardized regression coefficients estimated by regression on standardized values of independent variables, where the values are computed by subtracting time-series means from raw values and scaling the differences by standard deviations. The sample is composed of A and B shares issued by the same firms, where both shares are listed either on the Shanghai stock exchange (SHSE) or on the Shenzhen stock exchange (SZSE). The sample periods are July 1997 to December 2018and April 1999 to October 2017for stocks on the SHSE and the SZSE, respectively. We follow the principle component analysis (PCA) developed by Baker and Wurgler (2006, 2007) in estimating investor sentiment of the A and B share markets in Shanghai and Shenzhen, respectively. We construct regression equations as follows.

$$Prem_{it} = a + b\,(Sent_t^A - Sent_t^B) + c\,(Prem_{it\text{-}1}) + \varepsilon_{it}$$

The dependent variable is the A share premium ($Prem_{it}$). The independent variables include difference in investor sentiment between the two share markets $(Sent_t^A - Sent_t^B)$ and a lagged premium measure, i.e., $Prem_{it\text{-}1}$. The A share premium is measured by $\frac{P_{it}^A - P_{it}^B}{P_{it}^A}$, where $Price_{it}^A$ and $Price_{it}^B$ are currency adjusted prices for the A and B shares of stock *i*, respectively. Reported in parentheses are *t*-values clustered by firms and months. *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively.

	SHSE & SZSE	SHSE	SZSE
Panel A-1:			
$(Sent_t^A - Sent_t^B)$	0.068***	0.069***	0.068**
	(13.11)	(12.48)	(7.45)
$Prem_{it-1}$	0.969***	0.972***	0.962***
	(427.91)	(355.27)	(234.22)
Obs.	` 14,218	8,642	5,576
R^2	0.925	0.935	0.904

Table 3 Conditional relationship between the A-share premium and sentiment gap

This table reports standardized regression coefficients for stocks in the Shanghai and Shenzhen markets as a whole and for each of the two markets as well. The coefficients are estimated by standardizing both dependent and independent variables, where time-series means are subtracted from original values and the differences are scaled by standard deviations. The sample is composed of the A and B shares of the same firms, where both shares are listed on either the Shanghai stock exchange (SHSE) or Shenzhen stock exchange (SZSE). The sample periods are July 1997 to December 2018 and April 1999 to October 2017 for stocks on the SHSE and SZSE, respectively. The models are specified as follows.

$$Prem_{it} = a + b\,(Sent_t^A - Sent_t^B) + c\,(Prem_{it\text{-}1}) + \sum_{j=1}^{N} d_j\, Z_{ijt} + \varepsilon_{it}$$

The dependent variable is the A-share premium ($Prem_{it}$), measured by $\frac{P_{it}^A - P_{it}^B}{P_{it}^A}$. The explanatory variable is the difference in investor sentiment between the A and B sample shares of the same firms, or $(Sent_t^A - Sent_t^B)$. Besides the lagged premium ($Prem_{it\text{-}1}$), other control variables comprise Z_{ijt}, a vector composed of values of the *j*th remaining control variable (*j*=1, 2…, 11) at the end of month *t*. Definitions of all the control variables can be found in the Appendix A.2. Reported in parentheses are bootstrapped *t*-values clustered by both firm and year. *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively.

(*Continued*)

Table 3 (*Continued*)

Exchanges	SHSE & SZSE	SHSE	SZSE
Independent variables:			
$(Sent_t^A - Sent_t^B)$	0.062***	0.064***	0.058***
	(12.53)	(11.67)	(7.42)
$Prem_{it-1}$	0.956***	0.954***	0.953***
	(345.01)	(264.80)	(208.49)
$(\frac{INFM_A}{INFM_B})_{it}$	0.001***	0.001***	0.001
	(17.16)	(13.32)	(0.51)
$(\frac{NStk_A}{NStk_A + NStk_B})_{it}$	-0.042***	-0.031***	-0.065***
	(-3.66)	(-2.78)	(-4.37)
$(\frac{Vol_B}{Vol_A})_{it}$	-0.047***	-0.049***	-0.033***
	(-11.48)	(-10.32)	(-5.45)
$Ln(1+TO_{it}^A)$	0.026***	0.026***	0.027***
	(8.66)	(7.04)	(6.06)
$StateO_{it}$	0.012***	0.006**	0.013***
	(4.37)	(2.00)	(2.56)
$(\frac{\sigma_A}{\sigma_B})_{it}$	0.005	0.010**	-0.002
	(1.32)	(2.54)	(-0.53)
$(\frac{\beta_A}{\beta_B})_{it}$	0.001	0.002**	-0.003
	(0.65)	(2.16)	(-1.38)
$Size_{it}$	0.001	0.010***	0.001
	(0.32)	(3.31)	(0.27)
BM_{it}	-0.009***	-0.008**	-0.013***
	(-3.65)	(-2.47)	(-2.96)
$Liab_{it}$	-0.003	0.002	-0.005
	(-1.29)	(0.95)	(-1.40)
ROE_{it}	0.001	0.000	0.002
	(0.56)	(0.05)	(0.50)
Obs.	14,218	8,642	5,576
R^2	0.93	0.94	0.91

Table 4 Sub-period Analysis of the conditional relationship between the A-share premium and sentiment gap

This table reports standardized conditional coefficients estimated by standardizing values of both independent and dependent variables. The standardized values are computed by subtracting time-series means from raw values and scaling the differences by standard deviations. The sample is composed of stocks issued both the A and B shares listed either on the Shanghai stock exchange (SHSE) or the Shenzhen stock exchange (SZSE). The sub-sample periods are July 1997 to December 2000 and January 2001 to December 2018 for stocks listed on the SHSE, and April 1999 to December 2000 and January 2001 to October 2017 for those listed on the SZSE. The models are specified as follows.

$$Prem_{it} = a + b\,(Sent_t^A - Sent_t^B) + c\,(Prem_{it\text{-}1}) + \sum_{j=1}^{N} d_j\, Z_{ijt} + \varepsilon_{it}$$

The dependent variables in respective models are the A-share premium ($Prem_{it}$), measured by $\frac{P_{it}^A - P_{it}^B}{P_{it}^A}$. The explanatory variable is the difference in investor sentiment between the two share markets, or $(Sent_t^A - Sent_t^B)$. Control variables include the lagged premium ($Prem_{it\text{-}1}$).Other control variables constitute Z_{ijt}, a vector composed of values for the *j*th other control variable (*j*=1, 2…, N, where N=11) at the end of month *t*. Definitions for all the control variables can be found in the Appendix A.2. Reported in parentheses are *t*-values clustered by firms and months. *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively.

(*Continued*)

Table 4 (*Continued*)

Exchanges	SHSE		SZSE	
Sample periods	Beg.-2000	2001-End	Beg.-2000	2001-End
Independent variables:				
$(Sent_t^A - Sent_t^B)$	0.074***	0.082***	0.181***	0.063***
	(7.59)	(9.92)	(8.09)	(6.44)
$Prem_{it-1}$	0.902***	0.914***	0.845***	0.921***
	(45.61)	(163.27)	(31.16)	(137.16)
$(\frac{INFM_A}{INFM_B})_{it}$	0.003***	-0.002	-0.017***	0.001
	(3.64)	(-0.65)	(-3.57)	(0.63)
$(\frac{NStk_A}{NStk_A + NStk_B})_{it}$	-0.067***	-0.034**	-0.029	-0.077***
	(-3.90)	(-2.55)	(-1.47)	(-4.28)
$(\frac{Vol_B}{Vol_A})_{it}$	-0.084***	-0.059***	-0.056***	-0.042***
	(-5.42)	(-10.12)	(-2.73)	(-5.29)
$Ln(1+TO_{it}^A)$	-0.010	0.046***	0.026	0.046***
	(-0.83)	(8.96)	(1.22)	(7.69)
$StateO_{it}$	-0.001	0.022***	0.017	0.027***
	(-0.07)	(4.75)	(0.98)	(3.96)
$(\frac{\sigma_A}{\sigma_B})_{it}$	-0.001	0.027***	0.023	0.001
	(-0.16)	(3.80)	(1.11)	(0.16)
$(\frac{\beta_A}{\beta_B})_{it}$	0.006	0.003***	-0.049**	-0.003
	(0.61)	(2.58)	(-2.21)	(-1.23)
$Size_{it}$	0.003	0.017***	-0.028	-0.000
	(0.29)	(4.06)	(-1.40)	(-0.07)
BM_{it}	0.038***	-0.029***	-0.080***	-0.027***
	(3.34)	(-5.96)	(-3.55)	(-4.61)
$Liab_{it}$	0.028**	0.007**	0.008	-0.007
	(2.02)	(2.08)	(0.47)	(-1.53)
ROE_{it}	-0.003	-0.008*	-0.024**	0.002
	(-0.48)	(-1.69)	(-2.17)	(0.44)
Obs.	1,296	7,346	563	5,013
R^2	0.87	0.89	0.85	0.86

Table 5 Conditional relationship between the change in the A-share premium and sentiment gap

This table reports standardized regression coefficients for stocks in the Shanghai and Shenzhen markets jointly or individually. The coefficients are estimated by standardizing both dependent and independent variables, where time-series means are subtracted from original values and the differences are scaled by standard deviations. The sample is composed of the A and B shares of the same firms, where both shares are listed on either the Shanghai stock exchange (SHSE) or Shenzhen stock exchange (SZSE). The sample periods are July 1997 to December 2018 and April 1999 to October 2017 for stocks on the SHSE and SZSE, respectively. The models are specified as follows.

$$\Delta Prem_{it} = a + b\,(Sent_t^A - Sent_t^B) + c\,(\Delta Prem_{it\text{-}1}) + \sum_{j=1}^{N} d_j\, Z_{ijt} + \varepsilon_{it}$$

The dependent variable is the change in the A-share premium ($\Delta Prem_{it}$), measured by the difference of the premiums across two consecutive months. The explanatory variable is the difference in investor sentiment between the A and B sample shares of the same firms, or $(Sent_t^A - Sent_t^B)$. Besides the lagged premium ($\Delta Prem_{it\text{-}1}$), other control variables comprise Z_{ijt}, a vector composed of values of the *j*th remaining control variable (*j*=1, 2…, 11) at the end of month *t*. Definitions of all the control variables can be found in the Appendix A.2. Reported in parentheses are bootstrapped *t*-values clustered by both firm and year. *, **, and *** represent significant levels of 10%, 5%, and 1%, respectively.

(*Continued*)

Table 5 (*Continued*)

Exchanges	SHSE & SZSE		SHSE		SZSE	
Model	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables:						
$(Sent_t^A - Sent_t^B)$	0.255***	0.240***	0.271***	0.256***	0.240***	0.218***
	(13.88)	(13.67)	(13.02)	(12.40)	(8.15)	(8.48)
$\Delta Prem_{it-1}$	-0.056***	-0.074***	-0.063***	-0.080***	-0.044***	-0.066***
	(-5.47)	(-7.11)	(-4.84)	(-6.05)	(-2.69)	(-4.03)
$(\frac{INFM_A}{INFM_B})_{it}$		0.002***		0.002***		0.001
		(7.32)		(6.65)		(0.30)
$(\frac{NStk_A}{NStk_A + NStk_B})_{it}$		-0.149***		-0.120***		-0.203***
		(-3.69)		(-2.80)		(-4.38)
$(\frac{Vol_B}{Vol_A})_{it}$		-0.087***		-0.103***		-0.051***
		(-6.76)		(-6.56)		(-2.77)
$Ln(1+TO_{it}^A)$		0.084***		0.092***		0.074***
		(7.84)		(6.59)		(5.18)
$StateO_{it}$		0.018**		0.002		0.018
		(1.98)		(0.18)		(1.13)
$(\frac{\sigma_A}{\sigma_B})_{it}$		0.025*		0.051***		0.000
		(1.73)		(3.09)		(0.01)
$(\frac{\beta_A}{\beta_B})_{it}$		0.003		0.008*		-0.007
		(0.95)		(1.92)		(-0.96)
$Size_{it}$		-0.001		0.007**		0.023
		(-0.17)		(0.69)		(1.60)
BM_{it}		0.001		-0.005		0.003
		(0.14)		(-0.42)		(0.25)
$Liab_{it}$		-0.004		0.012		-0.005
		(-0.50)		(1.21)		(-0.46)
ROE_{it}		0.004		0.014		0.006
		(0.49)		(1.41)		(0.42)
Obs.	14,218	14,218	8,642	8,642	5,576	5,576
R^2	0.067	0.10	0.077	0.10	0.059	0.11

Table 6 Investor sentiment indices encompassing the A-share premium

This table reports loadings of investor sentiment indices. The sample is composed of all the A and B shares listed on the Shanghai stock exchange (SHSE) or Shenzhen stock exchange (SZSE). The sample periods are July 1997 to December 2018, April 1999 to October 2017, January 2006 to October 2017, and May 2011 to October 2017 for (1) the A and B shares on the SHSE, (2) the B and main-board A shares on the SZSE, (3) the small-and-medium-board A shares on the SZSE, and (4) the ChiNext-board A shares on the SZSE, respectively. The variables used includes market-wide P/E ratio (PE^M), the number of new share accounts opened by retail investors (AC), market-wide abnormal turnover ratio ($ANTO^M$), and market-wide A-share premium ($Prem^M$). The market-wide A-share premium is estimated by $\frac{P_m^A - P_m^B}{P_m^A}$, where P_m^A (P_m^B) is value-weighted market composite indices of the A (B)-share markets in Shanghai and Shenzhen, respectively. The asterisk superscript for the loadings in the B-share markets notifies that we use reciprocals of the premiums ($RPrem^M$) to obtain positive loadings, the same sign of the counterpart loadings in the A-share markets. In Panels B, we replace market-wide PE and ANTO with board-wide counterparts, or PE^{BD} and $ANTO^{BD}$, as our concern turns to board-wide sentiment indices. Following the principle component analysis (PCA) developed by Baker and Wurgler (2006, 2007), we construct an investor sentiment index for each of the four stock markets in Panel A (the SHSE-A, SHSE-B, SZSE-A, and SZHE-B) as well as for each of the three A-share boards from the Shenzhen exchange in Panel B.

Panel A: Sentiment indices for each market as a whole				
	PE^M	AC	$ANTO^M$	$Prem^M$/$RPrem^M$
SHSE-A	0.6001	0.6163	0.5089	0.0334
SHSE-B	0.5837	0.3889	0.5159	0.4919*
SZSE-A	0.5875	0.6088	0.5197	0.1190
SZSE-B	0.6271	0.1534	0.6279	0.4348*
Panel B: Sentiment indices for different boards of A shares in the SZSE				
	PE^{BD}	AC	$ANTO^{BD}$	$Prem^M$
SZSE-Main board	0.4764	0.6640	0.5727	0.0649
SZSE-Small and medium board	0.6137	0.5697	0.3592	0.4120
SZSE-ChiNext board	0.5766	0.5310	0.5244	0.3326