

An Empirical Study on the Impact of AH Premium Rates in the DCF Valuation Framework on A-Share Pricing Across Markets

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Abstract With the continuous improvement of the market system and market integration, the dynamics of AH stock premium have increasingly become the focus of investors' attention. Starting from the analytical perspective of the discounted cash flow (DCF) valuation model, using the monthly data of 79 stocks listed in both the A-share and H-share markets over the past 10 years, the empirical results show that: the size of the AH stock premium is affected by the dividend policy of individual stocks, the proportion of institutional ownership, the size of market capitalisation and the beta value, among other factors; after controlling for the main variable factors, the Fama-French five-factor regression coefficient is found to be significant. After controlling for the main variables, the Fama-French five-factor model shows that the AH stock premium factor can negatively and significantly affect the future price of A shares, and further analysis the sensitivity of the impact of the AH stock premium factor in different industries, with energy and commodities being the most important industries. This paper considers the AH share premium as a pricing influence factor, provides evidence and mechanism explanation of its pricing power, and expands the understanding of the pricing mechanism of cross-listed stocks.

Index Terms ah premium rate, DCF valuation, a-share pricing, fama-french five-factor model

I. Introduction

With the deepening of reform and opening up and the acceleration of the internationalization process, in order to break the drawbacks caused by market segmentation, increase stock liquidity, obtain international capital and enhance the competitiveness of enterprises in the market, a part of enterprises will choose cross-listing [1]-[3]. With the successive implementation of Shanghai-Hong Kong Stock Connect and Shenzhen-Hong Kong Stock Connect, many enterprises, in order to solve the problem of insufficient financing in a single market, have chosen to satisfy their needs for corporate expansion and development through dual listing on the Mainland China securities market and the Hong Kong Stock Exchange [4]-[6]. This mode of dual listing has led to the creation and differentiation of A-shares and H-shares [7]. The different listing locations make A-shares and H-shares different in terms of investor groups, trading rules, and market impact [8], [9]. As Hong Kong is an international capital market and a special administrative region of China, its capital market is huge, its market mechanism is more mature and its operation and regulation are more standardized, and it is dominated by institutional investors, so the pricing efficiency of H-shares is higher than that of A-shares [10]-[12].

Considering that the phenomenon of A-H share premium is mainly the premium of A-shares rather than the discount of H-shares, the development of a unified A-share pricing mechanism that balances and takes into account the interests of all parties is the key to improve the efficiency of stock pricing or market efficiency [13]-[15]. The traditional enterprise value assessment model pays more attention to the value brought by operational efficiency and fails to consider the potential value implied by enterprise uncertainty, which is prone to underestimate the value of A-share implementing enterprises [16], [17]. Real options theory believes that the actual value of the enterprise consists of two parts: the value brought by the existing operating business and the potential option value, which can reflect the overall value of the enterprise more objectively and comprehensively [18], [19]. Based on this, the discounted cash flow model (DCF) is introduced to value the current enterprise, and the theoretical pricing of debt-to-equity conversion is derived by calculating the overall value of the A-share implementing enterprise [20], [21].

II. Literature Review and Theoretical Assumptions

II. A. Theoretical review of the persistence of the AH premium

Existing literature on the existence of AH premium, domestic and foreign scholars have mainly carried out research on the causes and influencing factors of the premium. First, in terms of the causes of the AH premium, the relevant literature focuses on the four major hypotheses of the market segmentation theory:

(1) Information asymmetry: The A-share market has a significant impact on the stock discount premium due to information disclosure deficiencies, leading to asymmetry in investor access to information.

(2) Liquidity difference: The A-share market has better liquidity compared to the H-share market, with higher turnover rates and trading volumes, which contributes to the AH premium.

(3) Risk appetite differences: The two markets have different investor structures. The A-share market is dominated by retail investors, while the H-share market is more institutionalized. This difference in investor behavior leads to more speculative transactions in the A-share market, pushing up share prices.

(4) Demand differences: There are differences in the demand functions for stocks in the two markets. The demand elasticity for A-shares is lower, while Hong Kong investors have wider investment channels and higher demand elasticity for H-shares, which explains the AH premium.

On the other hand, the main influencing factors of AH premium:

(1) exchange rate fluctuation: point out that due to the fact that the two places are traded in different currencies, when the RMB appreciates, the attractiveness of A-shares to foreign investors is enhanced, which results in the rise of A-share prices relative to H-share prices and the formation of a premium.

(2) capital control and market openness: pointed out that although there are "Shanghai-Hong Kong Stock Connect" and "Shenzhen-Hong Kong Stock Connect" mechanism, but the financing mechanism is still not perfect, and the channels for foreign investors to enter the A-share market are still limited. There are still restrictions on foreign investors' access to the A-share market. The H-share market is more open, and the inflow of external funds is more convenient, resulting in different sources of funds for stocks in the two places, and the premium of A-shares is often higher due to the dominance of domestic capital.

(3) Differences in yields: found that the interbank lending rate and the market yields in the two places are positively correlated with the premium rate of A-shares.

(4) Market sentiments: explain the phenomenon of A-shares maintaining a high premium relative to H-shares over a long period of time from the perspective of inter-market differences in investor behavior.

In general, it seems that scholars have analyzed the phenomenon that the overall price of stocks in the A-share market will be higher than that in the H-share market from a macro-overall perspective through the differences in market systems and mechanisms. Theoretically, for individual securities, different factors also affect the premium difference, short-term volatility and long-term trend of AH stocks, while few literatures interpret from the micro perspective of individual stocks. The essence of valuation reflects the future earnings of stocks and stock price changes, for this reason, this paper explores from the DCF discounted cash flow valuation pricing model to see what factors affect the AH premium rate of individual securities, and digs deeper into the reasons for the AH premium to provide a theoretical basis for exploring the AH premium rate and the future pricing of A-shares.

II. B. Theoretical analysis of stock price differences of AH stocks under the DCF valuation perspective

Stock prices in most cases reflect investors' expectations of a company's value in a given time environment. There are numerous current methods for valuing stock prices, and John B. Williams (1938), a famous American investment theorist, proposed the discounted cash flow valuation model, which has been held up as a classic model for stock valuation in subsequent decades. From the basic discounted cash flow valuation pricing model, three factors determine the future price movement of a stock: market earnings, risk-free interest rate, and investor risk appetite. The specific formula is as follows:

$$P = \sum_{t=1}^n \frac{D_t}{(1+R)^t} = \sum_{t=1}^n \frac{E_0 * \text{dividend rate} * \prod_{i=0}^{t-1} (1+g_i)}{(1+R_f + (E(R_i) - R_f))^t} \quad (1)$$

Among them:

D - Corporate dividends, equal to corporate earnings E multiplied by the current year's dividend rate

g - Growth in corporate earnings

E - corporate earnings, which corresponds to market-wide earnings when valuing the market as a whole

R_f - risk-free rate

$E(R_i) - R_f$ - risk premium or investor risk appetite

(1) Impact of dividend policy on the denominator and numerator side of valuation

The fact that a company has been paying dividends or paying dividends frequently indicates that its operation is stable and its profitability is guaranteed. The more certain dividend income is easily favored by H-share investors, and the risk premium is relatively lower, thus the AH premium is relatively low. If a security does not pay dividends for a long period of time or pays fewer dividends, its profitability is unstable. the A-share market is dominated by retail investors with higher risk appetite, so the valuation given to A-shares is higher than that given to H-shares, and the AH premium is at a high level. Similarly, if a security switches from paying dividends all the time to ceasing to pay dividends, its future uncertainty increases, the greater the pricing divergence between A-share and H-share investors, and hence the AH premium is high.

Hypothesis 1: The dividend policy negatively affects the AH premium.

(2) Impact of institutional ownership on risk appetite at the denominator end of the spectrum

Compared with individual investors, institutional investors have richer knowledge reserves and are more rational in their valuation and pricing of A-shares. the A-share market has more retail investors, while the H-share market is dominated by institutional investors. in addition, there is a big difference between A-share investors and H-share investors in their views and preferences on the market, as international investors in the Hong Kong stock market have a wider range of investment choices, thus demanding a higher expected rate of return on H-shares. which led to an increase in the premium of A and H shares. Overall, A-share trading is significantly more active than H-share trading, and there is a so-called "liquidity premium" between the A-share and Hong Kong stock markets. Usually, in a more liquid market, the valuation of stocks is priced at a relatively higher level, and therefore, the AH spread is relatively higher.

Hypothesis 2: Institutional ownership negatively affects the AH premium.

(3) Impact of market capitalization of securities on the risk premium at the denominator end of the spectrum

Large-capitalization securities are better known and followed, with more analysts tracking and covering them in the market, and are therefore less affected by investors' information asymmetry, and their valuations tend to be more correctly priced. Compared with the Hong Kong securities market, the A-share market is more welcoming to companies with smaller market capitalization, and companies with small outstanding market capitalization of A and H shares are significantly more actively traded in the A-share market than in the Hong Kong market; while for companies with larger outstanding market capitalization, the difference in liquidity between A-shares and H-shares is not significant, and the average turnover rate is basically close to, or not significantly different from, that of the Hong Kong stock market. Therefore, for companies with smaller market capitalization, the ultra-high premium of their A-shares over H-shares partly comes from their liquidity advantage, the higher the risk premium, and the market capitalization of the securities shows a negative correlation with the AH premium, i.e., the larger the market capitalization stock will have a smaller AH premium.

Hypothesis 3: Market capitalization of securities negatively affects AH premiums.

(4) Impact of Beta on Risk Premium Appetite on the Denominator Side

As shown in Figure 1, the movements of the SSE/Hang Seng China Enterprises Index and the AH Premium Index are basically the same. This indicates that the movements of A-shares and the broader Hong Kong stock market are closely related to the AH share premium. The test shows that securities with higher beta to the SSE Index are more likely to rise with A-shares and have higher AH premiums. This is because securities with higher Beta values are more affected by stock market volatility, and because Hong Kong stock investors have a lower risk appetite, the valuation of such securities is lower; while A-share investors have a higher risk appetite for such securities with higher Beta values, so the AH premium is higher.

Hypothesis 4: Beta positively affects AH premiums.



Figure 1: AH Premium Index vs. SSE/HSEI

III. Research design

III. A. Sample selection and data sources

In this paper, the period from March 31, 2015 to November 29, 2024 is selected as the study period, in which March 31, 2015 is the first observation date and the last trading day of each month is used as the subsequent observation date. The A-share underlying of companies listed in both A (Shanghai and Shenzhen stock exchanges) and H (Hong Kong Stock Exchange) is used as the experimental group, and the stock underlying that meets the listing of both AH and H are included in the study to adapt to the dynamic changes of the market, including the initial number of stock underlying of 86 on March 31, 2015, and the final number of stock underlying of 151 on November 29, 2024. In this paper, monthly data is used as the standard, and a total of 124272 observations are obtained, and all data are from the Joinquant database.

III. B. Definition of key variables

(1) Dividend policy

Dividend yield and dividend yield are common indicators of stock dividends, and this paper uses dividend yield to replace the dividend policy variable. Specific formula: take each observation date as the base date, the sum of dividends paid by the underlying stock in the 365 natural days before the base date, divided by the total market capitalization of the stock at the close of the last trading day of the base date.

(2) Institutional holdings

Due to the difficulty in obtaining data on institutional shareholdings, a feature of trading between institutional and individual shareholdings is the difference in trading frequency. Based on the difference between the proportion of institutional shareholdings and the proportion of individual shareholdings in A and H shares in AH shares, the turnover rate is used as an indicator of this variable, and the specific formula is: taking each observation day as the base date, the average value of the daily turnover rate of the underlying stock for the 20 trading days prior to the base date, in units of %.

(3) Market value of securities

The indicator used in this paper is the market capitalization of AH shares outstanding, which is calculated by the following formula: number of shares outstanding× daily share price.

(4) Beta

Beta is the beta in the CAPM model and is calculated in this paper as the slope coefficient of a time-series exponentially weighted regression of the underlying stock's returns on the 252 trading days of stock prior to the base date against the market returns (all A-share returns weighted by the market capitalization outstanding), using each observation date as the base date. The index-weighted half-life is 63 trading days. Returns on suspended stocks are 0. Stocks need to be listed for more than 21 trading days, otherwise beta is null.

(5) AH share premium

In order to highlight more the changes in A-share and H-share prices, the calculation of the premium rate in this paper is simplified, calculated as follows: closing price of A-shares/closing price of H-shares-1, and monthly AH-share premium is obtained by the arithmetic average of daily AH-share premium calculations.

III. C. Empirical modeling

(1) Analysis of the impact of the AH premium rate

In this paper, a linear regression model is used to test the effect of each factor on the AH premium rate, and the model is shown in equation (2):

$$aph_{it} = \alpha_0 + \alpha_1 div_{it} + \alpha_2 turn_{it} + \alpha_3 \ln(val_{it}) + \alpha_4 beta_{it} + \lambda_i + \mu_t + \varepsilon_{it} \quad (2)$$

In equation (2), i denotes individual stocks and t denotes month; AH stock premium (aph) is the explanatory variable, and dividend yield (div), turnover rate ($turn$), market capitalization outstanding ($lnval$), and $beta$ are the core explanatory variables. λ_i represents individual fixed effects, μ_t represents time fixed effects, and ε_{it} is a random disturbance term.

(2) Fama-French five-factor model improvement

The Fama-French five-factor model was proposed in 2013 as a way to predict the expected return of a stock or portfolio through five factors: market risk premium, scale effect, value effect, profitability and investment level. In this paper, based on the Fama-French five-factor model, the AH stock premium rate is added to test the relationship between its impact and the future pricing of individual stocks, and the model is set up as shown in equation (3):

$$ret_{i,t+1} = \beta_0 + \beta_1 aph_{it} + \beta_2 controls_{it} + \gamma_i + \delta_t + \varepsilon_{it} \quad (3)$$

In equation (3), i denotes individual stocks and t denotes month; individual stock return (ret) is the explanatory variable, AH stock premium (aph) is the core explanatory variable, and Controls is a series of control variables, which specifically include the market factor (beta), the market capitalization factor (lnval), the book-to-market ratio factor (bm), the earnings factor (roe), and the investment factor (roa). γ_i represents individual fixed effects, δ_t represents time fixed effects, and ϵ_{it} is a random disturbance term. Focusing on the value of β_1 , if β_1 is negative and passes the significance test, it indicates that the premium rate negatively affects the future returns of AH stocks, and the excessive premium rate reduces the future returns of individual stocks.

IV. Empirical analysis

IV. A. Descriptive statistics

In this paper, the raw data are processed as follows: firstly, the samples that become AH stocks only during the study period are excluded; secondly, the interpolation method is utilized to supplement the missing data; and thirdly, the continuous variables are Winsorized to eliminate the effect of extreme values. Finally, a total of 9,243 panel data of 79 AH stocks from March 2015 to November 2024 are obtained as the study sample, and the descriptive statistics of each variable are shown in Table 1.

Table 1: Descriptive statistics of variables

variant	sample size	average value	(statistics) standard deviation	minimum value	maximum values
ahp	9243	1.884	0.832	0.96	5.76
ret	9243	0.468	10.126	-23.97	38.17
div	9243	0.023	0.022	0.00	0.11
turn	9243	0.936	1.127	0.01	6.79
lnval	9243	6.254	1.433	3.22	9.50
beta	9243	-0.254	1.017	-2.28	2.18
bm	9243	1.433	2.864	0.18	26.48
roe	9243	2.091	3.047	-13.39	10.66
roa	9243	0.748	1.097	-2.90	4.59

IV. B. Smoothness test

In order to ensure the validity of the panel regression model, it is necessary to ensure that the variables involved satisfy the smoothness requirement, otherwise the pseudo-regression problem may occur. In view of this, this paper uses the ADF unit root test to verify whether the data are smooth, and the original hypothesis of the ADF test is that the series is not smooth. As can be seen from Table 2, all the variables in this paper reject the original hypothesis of the existence of a unit root at the 1% significance level, indicating that the individual series are smooth and can be empirically analyzed using a panel regression model.

Table 2: Stability tests

variant	statistic	P-value	steady
ahp	21.0738	0.0000 ***	smoothly
ret	300.5929	0.0000 ***	smoothly
div	43.7356	0.0000 ***	smoothly
turn	86.8969	0.0000 ***	smoothly
lnval	4.0580	0.0000 ***	smoothly
beta	24.3225	0.0000 ***	smoothly
bm	3.4628	0.0003 ***	smoothly
roe	57.7643	0.0000 ***	smoothly
roa	50.1896	0.0000 ***	smoothly

Note: ***, **, * indicate significant at the 1%, 5%, and 10% levels, respectively.

IV. C. Analysis of factors affecting the AH premium rate

Table 3 shows the empirical results of AH premium rate, reflecting the effect of each variable on AH premium rate. Columns (1) to (4) add dividend yield, turnover rate, outstanding market capitalization and beta in turn, and the

direction of the coefficients and the significance level of each variable remain unchanged, indicating that the regression results are highly robust. Specifically, the regression coefficient of dividend yield is negative and passes the 1% significance level test, indicating that high dividend yield can attract more rational investors to pay attention to and invest in the company, which in turn promotes the stock price to reflect the company's valuation in a more reasonable way, and reduces the difference in the price of A-shares and H-shares, and hypothesis 1 passes the test. The regression coefficient of the turnover rate is significantly positive, indicating that the higher the stock trading activity, the higher the AH premium rate, which is in line with the theory of hypothesis 2. This is because the A-share market is dominated by retail investors, and individual investors are more enthusiastic about trading, and trade more frequently, with higher liquidity; while the investment cycle of H-share institutional investors is relatively long, and their investment style is more stable, with lower turnover rate, which makes the liquidity premium relatively lower. The relatively low turnover rate makes the liquidity premium lower, to a certain extent, limiting the H-share valuation upward space, AH spread becomes relatively high. The regression coefficient of market capitalization in circulation is significantly negative, indicating that large-cap companies have higher market attention and more transparent information, so investors value the company more accurately, which in turn reduces the phenomenon of AH stock premium, and Hypothesis 3 passes the test. beta's regression coefficient is significantly negative, indicating that when the correlation between stock price fluctuation and the overall volatility of the market is strong, the AH premium tends to be lower, and it fails Hypothesis 4, which may be due to the fact that Beta is usually calculated as a function of market price, and the AH spread becomes higher to some extent. may be due to the fact that Beta is usually calculated as the covariance or regression coefficient of individual stock returns and market returns, and when stocks have higher Beta, investors require higher risk compensation. Therefore, when A-shares have higher Beta, it will depress the valuation of A-shares and will narrow the AH premium, thus showing a negative correlation.

Table 3: AH premium regression results

	(1)	(2)	(3)	(4)
div	-3.6228 *** (-12.5583)	-2.7970 *** (-9.8807)	-2.7336 *** (-9.6478)	-2.8334 *** (-9.7899)
turn		0.1082 *** (22.9237)	0.1102 *** (22.9910)	0.1114 *** (23.0003)
Inval			-0.0452 *** (-3.4815)	-0.0437 *** (-3.3568)
beta				-0.0104* (-1.6873)
_cons	1.9665 *** (29.8993)	1.8463 *** (30.0795)	2.1258 *** (26.1646)	2.1149 *** (25.9497)
individual effect	YES	YES	YES	YES
time effect	YES	YES	YES	YES

Note: Values in parentheses are t-values, ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

IV. D. Fama-French five-factor regression analysis

(1) Factor validity test

With the help of Flush Supermind with akshare library to obtain the AH premium rate, through backtesting to test the effectiveness of the AH premium factor. Set the backtest period from March 30, 2015 to November 29, 2024, the frequency of position adjustment for the monthly frequency, the AH premium rate from low to high in the order of the first 25%, 50%, 75%, 100% is divided into four groups for backtesting, according to the Table 4 subgroups of the performance of backtesting can be seen: the smaller the AH premium factor, the higher the A-share return, and the rest of the relevant indicators are also better performance.

Table 4: Comparison of backtested metrics across groups

	25%	50%	75%	100%
Annualized rate of return	11.58%	8.13%	6.31%	1.47%
Sharpe ratio	0.45	0.26	0.17	-0.04
Information ratio	1.33	1.17	0.92	0.37
volatilities	0.2	0.22	0.23	0.22
maximum retracement	35.83%	39.33%	46.42%	46.24%

(2) Analysis of empirical results

To further test the impact of AH premium rate factor on future pricing of stocks, the AH premium rate factor is incorporated into the Fama-French five-factor model, and the regression results are shown in Table 5. In column (1), the regression coefficient of AH premium is -1.2201 and passes the test of 1% significance level, which indicates that too high AH premium will reduce the future return of A shares. The possible reasons are as follows: First, there is arbitrage behavior, when there is a high premium of A-shares compared with H-shares, rational investors tend to sell A-shares and buy H-shares, and this arbitrage behavior will promote the convergence of the premium and promote the decline of the future yield of A-shares. Secondly, value return, in the long run, stock prices tend to converge to their intrinsic value, so when the A-share premium is too high, the market may expect this premium to be unsustainable and the future stock price will converge to H-shares, which will lead to a lower A-share yield in the future. Third, investor sentiment, A-share investors are susceptible to emotional influences, resulting in stock prices deviating from their fundamental value, and the premium rate is too high, which may reflect excessive optimism among investors, and the market will ultimately correct this bias, resulting in a decrease in future yields. Columns (2) to (6) add each variable of the Fama-French five-factor model in turn, and the estimated coefficients of the AH spread factor are still significantly negative, indicating that the regression results are stable and reliable.

With respect to the five Fama-French factors, the coefficient of the market factor (beta) is usually expected to be positive because investors demand higher risk compensation for stocks with larger market factors. However, the regression coefficients of beta in Table 4 are significantly negative, indicating that for AH stocks, a larger market factor implies a lower A-share return, which may be due to the fact that there are cross-market trading opportunities for AH stocks, and arbitrage behaviors may be more frequent, which makes the price of AH stocks with high beta in the A-share market more reasonable. The regression coefficient of the market capitalization factor (Inval) is significantly negative, which is consistent with the expectation of the Fama-French five-factor model, suggesting that the same phenomenon of higher stock returns for small-capitalization companies exists in AH stocks. The regression coefficient of the book-to-market factor (bm) is significantly positive, which is due to the fact that the real value of companies with high book-to-market ratios may be undervalued by the market, and therefore have higher investment value and higher potential for future growth in stock price. The positive regression coefficient of the profitability factor (roe) indicates that companies with high profitability are more favored by investors in the AH stock market, and investors are willing to pay a higher price for them in anticipation of a higher rate of return in the future. The negative regression coefficient of the investment factor (roa) indicates that in the AH stock market, companies with over-investment or inefficient investment may face the problem of declining stock returns in the future, however, since the coefficient does not pass the test of significance, it may be due to the fact that the data of the AH stock market itself has high volatility, and the indicators such as its returns are easily affected by a variety of factors, such as the macroeconomic environment, policy changes, and market sentiment. The impacts of the AH stock market data This may hide the real relationship between investment and future stock returns, making it difficult for the coefficients to pass the significance test.

Table 5: Model regression results

	(1)	(2)	(3)	(4)	(5)	(6)
ahp	-1.2201 *** (-5.0168)	-1.1776 *** (-4.8415)	-1.1471 *** (-4.7381)	-1.1935 *** (-4.9177)	-1.1440 *** (-4.6697)	-1.1950 *** (-4.8017)
beta		-0.5678 *** (-3.9670)	-0.4149 *** (-2.8939)	-0.3583** (-2.4710)	-0.3528** (-2.4321)	-0.3588** (-2.4719)
Inval			-2.8964 *** (-9.3864)	-2.4002 *** (-6.6016)	-2.5506 *** (-6.7565)	-2.4766 *** (-6.4692)
bm				0.6465 *** (2.5782)	0.6386** (2.5464)	0.6582 *** (2.6187)
roe					0.0607 (1.4793)	0.1325* (1.7881)
roa						-0.2745 (-1.1635)
_cons	2.6305 *** (5.5995)	2.4076 *** (5.0929)	20.4979 *** (10.3322)	16.5720 *** (6.6277)	17.3051 *** (6.7892)	16.9641 *** (6.6120)
individual effect	YES	YES	YES	YES	YES	YES
time effect	YES	YES	YES	YES	YES	YES

Note: Values in parentheses are t-values, ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

V. Further research

The previous empirical evidence shows that the AH premium rate factor has a significant negative impact on the future pricing of A-shares. In this part, the heterogeneity test will be conducted from the industry classification to examine the differences in the sensitivity of different industries to the AH premium rate factor. In this part, among the 79 AH stocks, four industries, namely, industry, finance, energy and raw materials, which account for a larger proportion of the sample, are selected for group regression, and the empirical results are shown in Columns (1) to (4) of Table 6.

As can be seen from Table 6, firstly, for the energy and raw materials sectors, the AH premium factor has a significant negative impact on the future pricing of stocks and has the greatest degree of impact. This may be due to the fact that these two sectors are significantly affected by the macroeconomic cycle. The different sensitivities and expectations of the A-share and H-share markets to the economic cycle can lead to differences in the pricing of stocks in the energy and raw materials sectors. For example, when the domestic economy takes the lead in recovery, energy and raw materials stocks in the A-share market may reflect the expectation of economic upturn in advance and see their prices rise, while the H-share market may have different judgments on the pace and strength of the global economic recovery and see relatively lagging price increases, which would allow the AH premium factor to have a significant effect on their pricing. Second, for the industrial sector, the AH premium factor also has a significant negative impact on future stock returns, but to a lesser extent than the energy and raw materials sectors. The industrial sector is greatly affected by policies, and A-share market investors are more sensitive to domestic policies. At present, it is the time when the country introduces various favorable policies to encourage industrial upgrading and intelligent manufacturing, etc., and A-share industrial enterprise stocks may be warmly pursued by the market, while H-share market investors may need to comprehensively consider the global policy environment and the enterprise's international business layout and other factors to evaluate the value of the enterprise, which results in the significant effect of the AH premium factor on the pricing of stocks. factor to play a significant role in stock pricing. Third, in the financial industry, the regression coefficient of the AH premium factor is negative but fails the significance test. This is because the financial industry is subject to more stringent external regulation and the high complexity of financial instruments and products, resulting in a more complex association between the AH premium and other factors (e.g., market liquidity, interest rate changes, etc.). In addition, the earnings model and market performance of the financial industry are more likely to be affected by macroeconomic policies and financial market environment rather than purely AH premium, which in turn weakens the correlation between AH premium and future stock returns.

Table 6: Subgroup regression results

	industries	financial	renewable energy	raw materials
ahp	-1.1257** (-2.4199)	-0.0940 (-0.1249)	-3.0456 *** (-3.7674)	-3.6671 *** (-4.4333)
beta	-0.1341 (-0.5387)	0.6419* (1.9291)	-1.3645 *** (-2.9335)	0.2810 (0.6134)
lnval	-2.8375 *** (-3.5852)	-4.0749 *** (-3.9185)	-5.6498 *** (-3.7129)	-3.6357 *** (-3.2879)
bm	0.6787 (1.1123)	0.9880 *** (3.0513)	-1.2732* (-1.7859)	2.2605 *** (2.7269)
roe	0.0845 (0.6088)	1.0304** (2.4352)	0.5964 *** (3.0459)	0.1547 (0.8645)
roa	-0.1013 (-0.2022)	-13.7704 *** (-3.2067)	-0.9194* (-1.7301)	0.3833 (0.7258)
_cons	17.8687 *** (3.6798)	31.3391 *** (3.5850)	46.1152 *** (4.1267)	24.1748 *** (3.3818)
individual effect	YES	YES	YES	YES
time effect	YES	YES	YES	YES

Note: Values in parentheses are t-values, ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

VI. Conclusions and insights

This paper focuses on the impact of the AH premium rate on the future pricing of A-shares. It explains the factors influencing the formation of the AH premium rate from the perspective of DCF valuation, adds the AH premium rate factor to the Fama-French five-factor model to study its influence and direction, and conducts a heterogeneity test through industry classification to further analyze the sensitivity of the AH premium factor in pricing stocks across different industries. The main conclusions are as follows:

(1) the formation of AH premium rate will be affected by the differences in individual stocks, mainly manifested in the dividend policy of individual stocks, the proportion of institutional shareholding, market capitalization and Beta, the first three factors are negatively correlated;

(2) AH premium can negatively affect the future pricing of A-shares, and is explained by the addition of the Fama-French five-factor of AH premium factor, while the AH premium factor can negatively affect the future pricing of A-shares relative to the other conventional factors. explained, and at the same time, the AH premium rate factor is more significant relative to other conventional factors, so the AH premium rate factor can be used as a leading indicator for predicting the future price trend of AH stock A-shares;

(3) through the classification of different industries of AH stock, it is found that there are differences in the degree of influence of the AH premium rate factor on the future price of stocks in different industries, with energy and raw materials industries being the most sensitive, and the financial industry being not obvious.

Based on the above conclusions, the findings of this paper have the following insights: on the one hand, the Fama-French pricing model constructed based on the AH stock premium and the sensitive impact regression analysis of different industries can be used accurately by investors to assist in the formulation of investment and trading strategies; on the other hand, the research in this paper suggests that the AH stock premium is not only affected by the market segmentation and institutional differences, but also affected by different factors of individual securities to a large extent. On the other hand, this paper shows that the AH stock premium is not only affected by market segmentation and institutional differences, but also affected by different factors of individual securities to a large extent. Investors can pay attention to the dividend policy of individual stocks, the proportion of institutional shareholding, and the size of the market capitalization to grasp the changes in the AH stock premium rate, and improve the winning rate of investment decisions; finally, in the future, as China's capital market continues to encourage the entry of medium- and long-term funds, such as insurance, social security, trusts and other institutions, and deepens the interconnection mechanism to encourage the inflow of foreign capital, A-shares are expected to become more "institutionalized". A shares are expected to become more "institutionalized". If the relevant policies can continue to be launched, the proportion of institutional investors in A shares is expected to be improved, the overall turnover rate may be reduced, the A-share valuation also has space to decline, AH premium is expected to get a certain degree of convergence.

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References

- [1] Shi, H., Zhang, X., & Zhou, J. (2018). Cross-listing and CSR performance: evidence from AH shares. *Frontiers of Business Research in China*, 12, 1-15.
- [2] Zhang, J. F. (2022). The Market Reaction to Cross - border Listings: Evidence from AH Listed Firms. *China & World Economy*, 30(6), 183-218.
- [3] Chen, H., & Zhu, Y. (2015). An empirical study on the threshold cointegration of Chinese A and H cross-listed shares. *Journal of Applied Statistics*, 42(11), 2406-2419.
- [4] Luo, X., Yu, X., Qin, S., & Xu, Q. (2020). Option trading and the cross - listed stock returns: Evidence from Chinese A-H shares. *Journal of Futures Markets*, 40(11), 1665-1690.
- [5] Arslan-Ayaydin, Ö., Chen, S., Ni, S. X., & Thewissen, J. (2022). Is cross-listing a panacea for improving earnings quality? The case of H-and B-share firms in China. *International Review of Financial Analysis*, 81, 102113.
- [6] Song, Y., Li, Z., Jin, G., & Huang, J. (2023). On the influencing factors of AH shares linkage in China under new regulation policy of reduction. *International Journal of Financial Engineering*, 10(04), 2350034.
- [7] Carpenter, J. N., Whitelaw, R. F., & Zou, D. (2020). The AH premium and implications for global investing in Chinese stocks. February, 6, 2020.
- [8] Zhang, X., Xu, R., & Liu, X. (2022). Premiums between Cross - listed Shares: Determinants and Assessment of Financial Reform Policy Effectiveness. *China & World Economy*, 30(3), 75-99.
- [9] Bao, W., Guo, S., Peng, D., & Rao, Y. (2023). Trading gap in holidays and price transmission: Evidence from cross-listed stocks on the A-share and H-share markets. *International Review of Financial Analysis*, 87, 102616.
- [10] Dong, W. (2024). Formation Mechanism and Dynamic Changes of the AH Premium: An Empirical Analysis Based on Multi-factor Models. *Journal of Fintech and Business Analysis*, 1, 31-35.

- [11] Pong, E., Gunthorp, P., & Chen, A. (2017). Capturing the Chinese A-shares and H-shares price anomaly. *The Journal of Index Investing*, 7(4), 60.
- [12] Li, S., Ge, S., Yan, Y., & Linton, O. B. (2024). AH Share Price Difference: A Theoretical and Empirical Analysis. Available at SSRN 4792118.
- [13] Li, F., Liu, X., & Viswanathan, V. (2021). The Revealed Inefficiencies of the China AH Premium. *The Journal of Portfolio Management*.
- [14] Zheng, Y., Osmer, E., & Zheng, L. (2018). The relative pricing of cross-listed securities: The case of Chinese A-and H-share. *The Quarterly Review of Economics and Finance*, 67, 297-310.
- [15] Liu, J., Wu, K., & Zhu, Y. (2025). Does Stock Liquidity Explain the AH Premium? Evidence from Chinese Cross-Listed Stocks. *Evidence from Chinese Cross-Listed Stocks* (January 15, 2025).
- [16] Huang, W. B., Liu, J., Bai, H., & Zhang, P. (2020). Value assessment of companies by using an enterprise value assessment system based on their public transfer specification. *Information Processing & Management*, 57(5), 102254.
- [17] Kusainov, H., Demeuova, G., Nurmanov, A., Toktarova, M., & Azhaipova, I. (2020). WAYS TO IMPROVE COMPANY VALUE ASSESSMENT. *OF SOCIAL AND HUMAN SCIENCES*, 120.
- [18] Huang, S., Tan, H., Wang, X., & Yu, C. (2023). Valuation uncertainty and analysts' use of DCF models. *Review of Accounting studies*, 28(2), 827-861.
- [19] Olbert, L. (2024). Industry-specific stock valuation methods—a literature review. *Journal of Accounting Literature*, 47(5), 52-70.
- [20] Sayed, S. A. (2017). How much does valuation model choice matter? Target price accuracy of PE and DCF model in Asian emerging markets. *Journal of Accounting in Emerging Economies*, 7(1), 90-107.
- [21] Adamczyk, P., & Zbroszczyk, A. (2017). A key factor of the DCF model coherency. *Journal of Economics and Management*, 28, 5-22.