

CSI300 Option Mock Trading Market Analysis Report

September 2014



ZRF Option Division

Dylan Zhu

Tel : 021-51557580

E-mail : zhuyuyin@zrhxqh.com

Futures Business Credential: F0305902

Wayne Tang

Tel : 021-51557579

E-mail : tangshicheng@zrhxqh.com

Futures Business Credential: F3000561



25F GC Tower, No 1088 Yuanshen Road, Pudong District,
Shanghai, 200122

Table of Contents

Introduction		2
1	Volume Statistics	3
1.1	Overview	3
1.2	Volume Distribution Over Contract Months	3
1.3	Volume Distribution Over Moneyness	5
1.4	Volume Put/Call Ratio	7
2	Open Interest Statistics	8
2.1	Overview	8
2.2	Open Interest Put/Call Ratio	8
3	Amount Statistics	9
3.1	Overview	9
3.2	Amount Distribution Over Contract Months	10
3.3	Amount Distributions Over Moneyness	10
4	Implied Volatility	12
4.1	Time Series of Implied Volatility	12
4.2	Implied Volatility Surface	14

Introduction

Mock trading of options on CSI 300 index was launched on November 8th 2013, which is an important step to the introduction of the new product into Chinese capital market. At the mean time, the launch of mock trading promotes the education of investors and tests option trading with the domestic market. Until now, the mock trading has been running smoothly for more than 10 months.

Since the beginning of 2014, the China Financial Futures Exchange (CFFEX) has carried out a series of events to promote options and educate investors. Particularly, Mock Trading Promotion Competition was held from March 24th to April 30th 2014, during which member futures companies invited their clients to participate in the mock trading through hosting competitions. As a result of the event, the daily trading volume surged at a staggering rate of 23.85% per day throughout April, reaching a peak of 40,813,725 contracts on April 18th, the settlement date of the April contracts.

In addition, CFFEX held a competition among financial institutions to examine the ability of market makers from May 19th to June 20th. 71 institutions participated in the competition, during which the bid/ask spreads across whole market averaged less than 1.3 points, dropping from more than 10 points before the event.

This report presents the data and statistics for mock trading of options on CSI 300 index from March to September 2014. The purpose is for investors to better understand the status quo of the development of CSI 300 option market.

The data in this report are obtained from Wind Information, the largest financial data vendor in Mainland China, and is compiled and furnished for investors' reference only. Zhong Rong Hui Xin Futures Co., Ltd. (ZRF) made an effort to ensure the quality of the data, but does not hold the responsibility for any errors and omissions that may occur in the report.

1 Volume Statistics

1.1 Overview

Since November 8th 2013, mock trading on CSI 300 option has been running smoothly for more than 10 months. The average daily volume for September is 68,596 contracts, an increase of 26.11% from the last month but much smaller than the staggering volumes transacted in April, when the CFFEX held the Mock Trading Promotion Competition among its member futures companies. The competition lasted from March 24th to the end of April, during which daily trading volumes increased at a rate of 23.85% per day. As an aftermath of the competition, trading activities remain lively in May, and were gradually diminished in the following months. If competition effect is removed from volume data in March, the average daily volume in that month is only 25,043 contracts. Consequently, the number of September, though dwarfed by the competition period, is more than doubled that before the event.

Meanwhile, it can be noticed that the volumes of call options are consistently larger than those of put options, sometimes more than two times the volumes of put. This preference for call is also evident in the section of put/call ratio, suggesting that Chinese investors are generally more accustomed to longing than shorting, and are currently more confident in the recovery of equity market than worried about its collapse.

Exhibit 1: Volume statistics overview

Month	Trading days	Volume			Ave. Daily Volume
		C	P	Total	
Mar	21	2,450,192	1,112,714	3,562,906	169,662
Apr	21	211,508,146	124,055,971	335,564,117	15,979,244
May	20	82,043,392	25,042,454	107,085,846	5,354,292
Jun	20	5,410,672	3,321,211	8,731,883	436,594
Jul	23	1,418,666	847,445	2,266,111	98,527
Aug	21	744,257	398,033	1,142,290	54,395
Sep	10	394,546	291,414	685,960	68,596

Source: Wind Information, ZRF Option Division

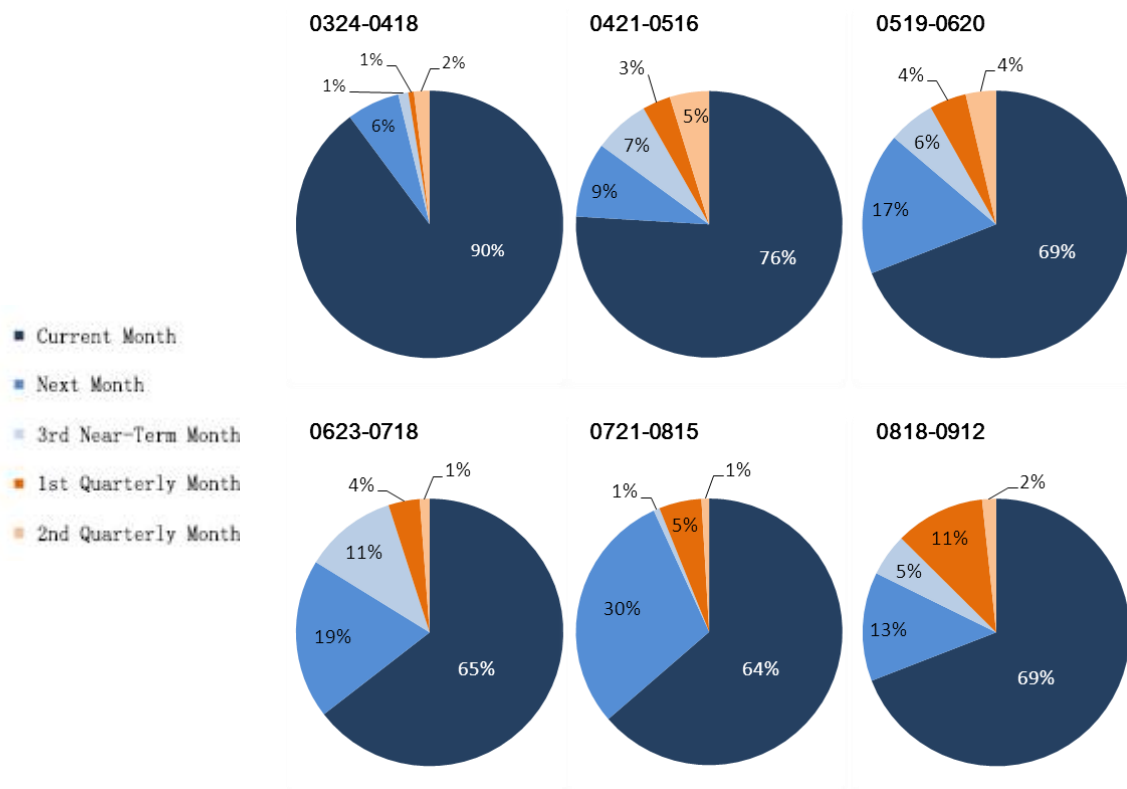
1.2 Volume Distribution Over Contract Months

Volume distribution over contract months refers to the mock trading volume distribution over all contract months (3 near-term months plus 2 quarterly months) for a given time period. Generally, the trading volumes of the current month (1st near-term month) represent the majority of the total trading volumes,

especially in April when it represents 90% of the total volume. This exceptionally large proportion can be explained by investors' lack of knowledge in option trading when they first entered the mock trading market in April. The figure drops and stabilizes in later months to a range from 64% to 69%. Also, it is interesting to note that 69% only occurs in the period when the current month is also a previous quarterly month. For example, during May 19th to June 20th, the contract months are June, July, August, September and December. The current month is June which is a previous quarterly month, and the trading volume of June contract makes up 69% of total volume. Thus, when the current month is also a quarterly month, the trading volume is usually larger.

The distributions for contract months other than the current month vary from pie to pie, but the trading volumes in nearer contract months are generally larger than farther contract months.

Exhibit 2: Volume distribution over various contract months



*The period here is from one expiration date to the next.

Source: Wind Information, ZRF Option Division

1.3 Volume Distribution Over Moneyness

Degree of moneyness is defined as CSI 300 closing price divided by strike price in this report.

$$\text{Degree of moneyness} = \frac{\text{CSI 300 Closing Price}}{\text{Strike Price}}$$

Thus, for call option, a degree of moneyness greater than 1 is in-the-money while less than 1 is out-of-the-money; for put option, a degree of moneyness greater than 1 is out-of-the-money while less than 1 is in-the-money. An option is close to at-the-money when the degree of moneyness is close to 1, and vice versa.

Exhibit 3a: Volume distributions of call over various degrees of moneyness

Month Moneyness	2014-04	2014-05	2014-06	2014-07	2014-08	2014-09
<= 0.81	0.89%	0.49%	4.18%	0.00%	0.00%	0.00%
0.81-0.83	0.61%	0.19%	1.08%	0.00%	0.00%	0.00%
0.83-0.85	0.20%	0.04%	0.49%	0.00%	0.00%	0.00%
0.85-0.87	0.22%	0.47%	2.32%	1.14%	0.00%	0.00%
0.87-0.89	1.15%	0.25%	0.82%	0.89%	0.02%	0.00%
0.8-0.91	32.20%	1.12%	3.53%	1.62%	0.37%	0.04%
0.91-0.93	20.47%	9.04%	5.67%	4.16%	1.90%	0.40%
0.93-0.95	4.15%	12.70%	8.48%	10.88%	11.09%	5.59%
0.95-0.97	2.70%	30.06%	8.39%	8.02%	4.53%	8.23%
0.97-0.99	8.07%	30.23%	16.02%	14.78%	7.83%	13.64%
0.99-1.01	14.06%	5.68%	20.58%	16.13%	22.29%	14.49%
1.01-1.03	5.85%	3.91%	9.41%	18.33%	18.41%	17.76%
1.03-1.05	3.92%	3.18%	5.60%	7.42%	5.52%	13.28%
1.05-1.07	2.48%	1.23%	6.92%	6.22%	6.24%	5.45%
1.07-1.09	0.36%	0.66%	2.88%	3.91%	6.85%	4.75%
1.09-1.11	0.39%	0.23%	1.63%	2.30%	3.50%	3.36%
1.11-1.13	0.24%	0.31%	0.96%	2.07%	2.82%	2.72%
1.13-1.15	0.35%	0.22%	0.96%	0.89%	1.54%	1.84%
1.15-1.17	0.10%	0.00%	0.08%	0.79%	2.80%	2.12%
1.17-1.19	0.70%	0.00%	0.00%	0.10%	1.97%	1.05%
1.19-1.21	0.89%	0.00%	0.00%	0.17%	0.30%	0.74%
1.21-1.23	0.00%	0.00%	0.00%	0.19%	0.89%	1.49%
1.23-1.25	0.00%	0.00%	0.00%	0.01%	1.10%	0.31%
1.25-1.27	0.00%	0.00%	0.00%	0.00%	0.03%	0.87%
> 1.27	0.00%	0.00%	0.00%	0.00%	0.00%	1.87%

Source: Wind Information, ZRF Option Division

Exhibit 3b: Volume distributions of put over various degrees of moneyness

Month Moneyness	2014-04	2014-05	2014-06	2014-07	2014-08	2014-09
0.79-0.81	0.01%	0.12%	0.37%	0.00%	0.00%	0.00%
0.81-0.83	0.01%	0.08%	0.27%	0.00%	0.00%	0.00%
0.83-0.85	0.01%	0.06%	0.14%	0.00%	0.00%	0.00%
0.85-0.87	0.08%	0.72%	1.23%	0.33%	0.00%	0.00%
0.87-0.89	0.06%	0.36%	0.46%	0.41%	0.01%	0.00%
0.80-0.91	0.22%	1.88%	1.57%	0.88%	0.12%	0.01%
0.91-0.93	0.47%	1.18%	3.49%	2.13%	1.54%	0.20%
0.93-0.95	0.60%	6.53%	5.95%	3.99%	4.63%	1.91%
0.95-0.97	1.43%	2.37%	6.01%	3.75%	3.25%	5.05%
0.97-0.99	6.99%	12.92%	12.23%	6.78%	4.03%	8.12%
0.99-1.01	8.30%	17.93%	15.04%	10.41%	8.90%	10.87%
1.01-1.03	7.82%	20.10%	15.56%	14.19%	10.92%	14.54%
1.03-1.05	3.93%	18.04%	10.27%	18.91%	7.38%	15.94%
1.05-1.07	4.53%	13.89%	11.37%	8.53%	10.63%	7.95%
1.07-1.09	3.45%	1.40%	6.38%	11.44%	14.75%	7.16%
1.09-1.11	3.31%	0.66%	4.91%	6.66%	11.68%	5.21%
1.11-1.13	16.32%	0.65%	2.31%	5.86%	5.51%	2.77%
1.13-1.15	32.93%	1.11%	2.31%	2.25%	2.63%	5.11%
1.15-1.17	9.36%	0.00%	0.12%	1.57%	4.92%	2.21%
1.17-1.19	0.16%	0.00%	0.00%	0.78%	4.11%	2.18%
1.19-1.21	0.02%	0.00%	0.00%	0.40%	0.24%	2.12%
1.21-1.23	0.00%	0.00%	0.00%	0.72%	1.64%	1.42%
1.23-1.25	0.00%	0.00%	0.00%	0.02%	2.98%	2.15%
1.25-1.27	0.00%	0.00%	0.00%	0.00%	0.12%	3.93%
1.27-1.29	0.00%	0.00%	0.00%	0.00%	0.00%	1.13%

Source: Wind Information, ZRF Option Division

During April when the Mock Trading Competition was held, the trading volumes were heavily located in the out-of-the-money region, accounting for 30% to 50% of the total volume. This is because investors taking part in the competition were not familiar with options at first, and they tended to trade cheap products in the hope of speculating with higher leverage.

The distributions after April are more reasonable, especially during the market-maker competition in June. The at-the-money options (0.99-1.01) were the most active ones in June, making up 20.58% and 15.04% of calls and puts respectively in terms of trading volumes. It can also be noticed that deep-out-of-the-money call options in that month account for 4.18%, which is much higher than other periods. The reason is that in the previous months, a lot of investors longed the 2700 June call (deep-out-of-the-money), and during

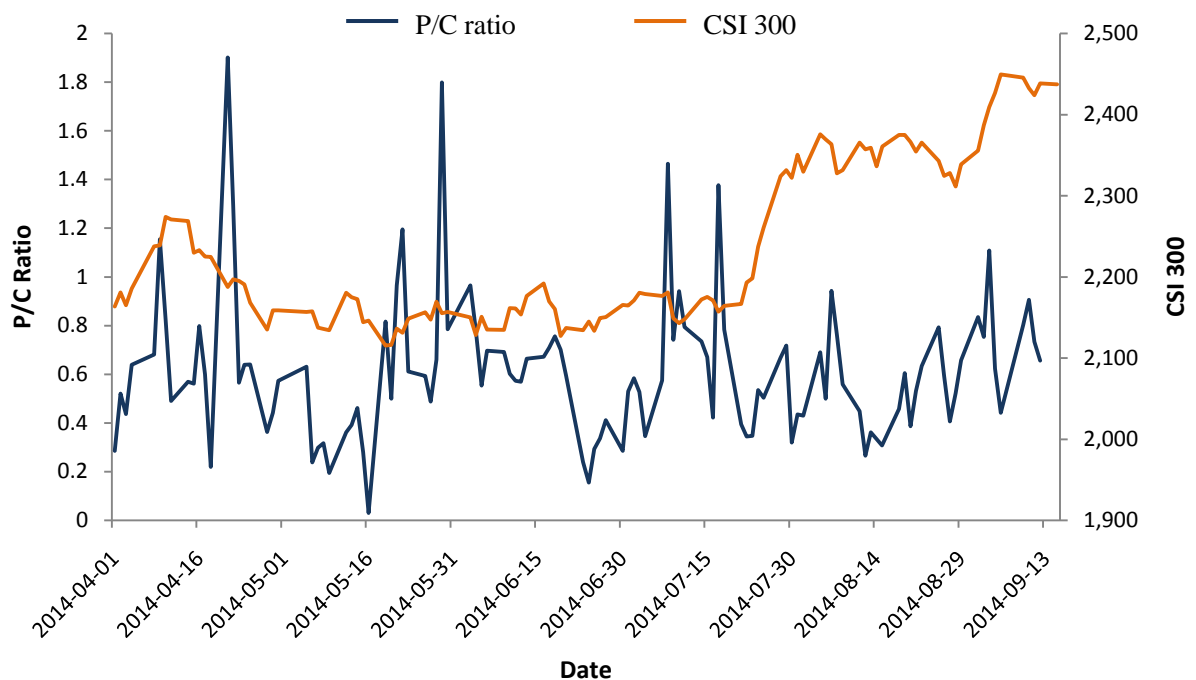
the expiration month many of them closed their positions causing that much trading activities in deep-out-of-the money call. This effect can also be seen in the put volume distribution, where a one-sided tail towards higher strikes (and lower moneyness) is observed.

In September, the call options are mostly traded in near-the-money region, while the put options are traded slightly out-of-the-money. Similar to June, we can observe a long tail on one side of the distribution towards low-strike area (and high moneyness), which is a result from previously opened low-strike positions offset in the expiration month. Generally speaking, the distribution in a quarterly month has a fatter tail than those in a non-quarterly month.

1.4 Volume Put/Call Ratio

Volume put/call ratio is the ratio of daily volumes of put to call. On average, this ratio is less than 1, showing that investors are more interested in calls than puts. As was explained in the previous section, this could be either that investors are more confident in the rise of the market or that they have a tendency to long than short.

Exhibit 4: Volume Put/Call ratio and CSI 300 index



Source: Wind Information, ZRF Option Division

Meanwhile, the put/call ratio is becoming less volatile from April to September. During the first two months of the chart, this ratio can go up and down to almost 2 and 0 respectively. However, as time passes by, it is bounded in the range between 0.4 and 1.2.

Also note that the spikes of put/call ratio are sort of correlated with CSI 300. When put/call ratio is at its peak, CSI 300 usually drops. However, this correlation is not pronounced and needs to be further investigated.

2 Open Interest Statistics

2.1 Overview

Exhibit 5: Open Interest* statistics overview

Months	Trading Days	Contract Open Interest*			Ave. Daily Open Interest
		Call	Put	Total	
Mar	21	280,966	139,881	420,847	137,328
Apr	21	3,414,115	2,821,750	6,235,865	3,124,907
May	20	899,979	338,859	1,238,838	3,642,329
Jun	20	235,230	165,331	400,561	1,040,404
Jul	23	181,743	132,989	314,732	375,286
Aug	21	145,705	112,509	258,214	277,559
Sep	9	154,513	121,450	275,963	270,542

* Open interest is for the end of the period

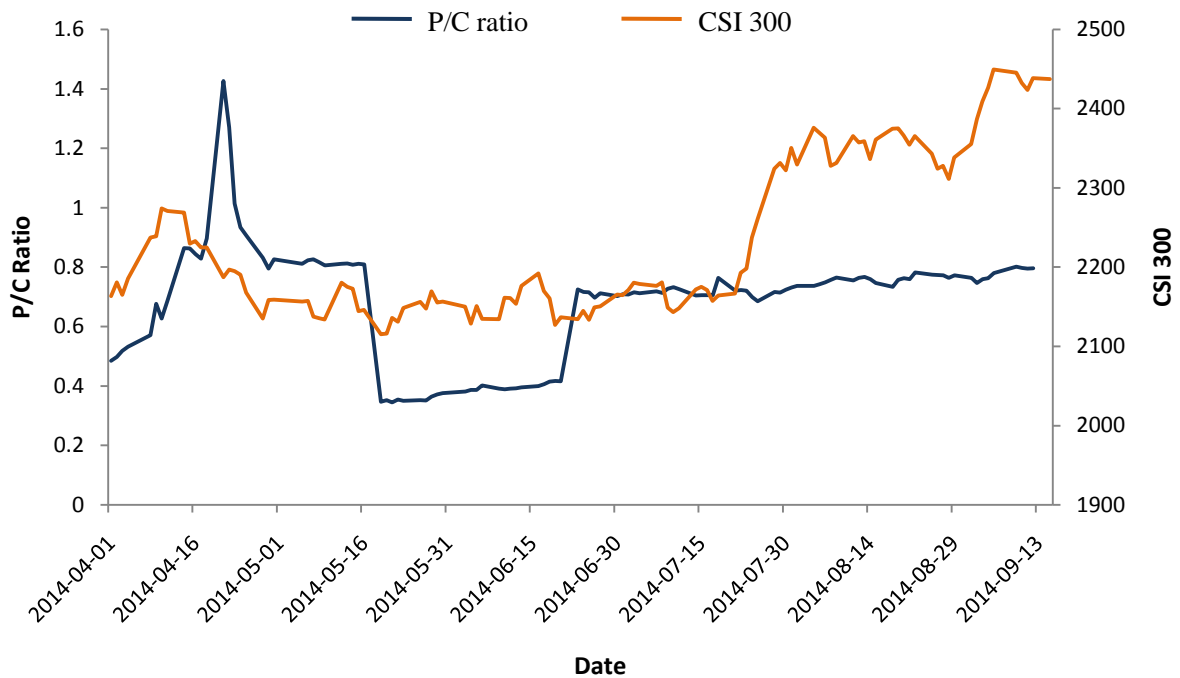
Source: Wind Information, ZRF Option Division

As a result of the competition in April, the average daily open interest during April and May are more than 10 times that of the other months. The figure gradually drops as the event ended. In September, the average daily open interest is 270,542 contracts, though much smaller compared with the competition period, still more than doubled that in March. This shows a growing interest among people in option trading.

2.2 Open Interest Put/Call Ratio

Open interest put/call ratio is the ratio of end-of-day open interest of put to call. The ratio spiked in April, dropped dramatically to 0.4 during May and June, then was stabilized around 0.75 until September. Generally, the ratio is below 1, suggesting that people are more interested in holding calls than puts.

Exhibit 6: Open Interest Put/Call ratio and CSI 300 index



Source: Wind Information, ZRF Option Division

3 Amount Statistics

3.1 Overview

Exhibit 7: Amount* statistics overview

Months	Trading Days	Amount			Ave. Daily Amount
		Call	Put	Total	Total
Mar	21	3,979,575	1,395,475	5,375,050	255,954.748
Apr	21	129,845,000	63,075,058	192,920,058	9,186,669.435
May	20	31,776,157	22,402,947	54,179,104	2,708,955.181
June	20	2,803,210	1,915,756	4,718,966	235,948.318
July	23	881,591	309,213	1,190,805	51,774.110
Aug	21	844,434	138,486	982,920	46,805.706
Sep	9	483,074	94,879	577,953	64,216.948

*The unit of amount is 10,000 RMB

Source: Wind Information, ZRF Option Division

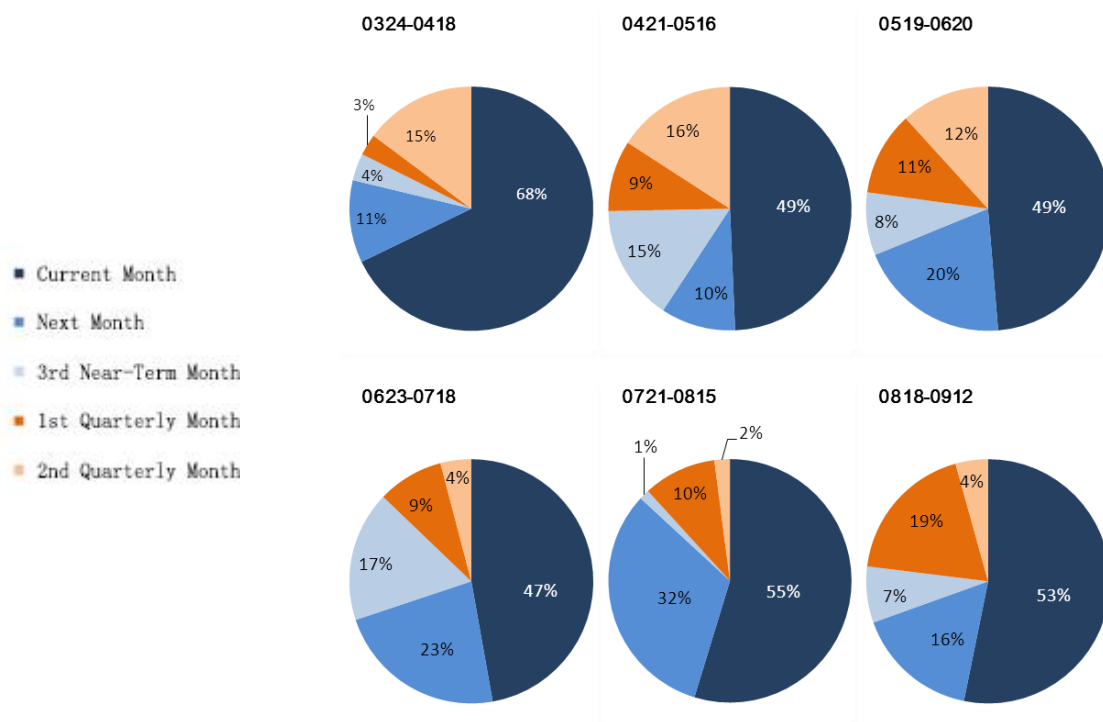
Amount is the money involved in trading options and its unit is 10,000 RMB. The average daily trading amount in September is 642,169,480 RMB, a 37.2% increase from the previous month, showing that investors' enthusiasm towards mock trading is rallying from the drop in July and August. If the competition effect is excluded from March's data, the adjusted average daily amount in March is only

185,759,000 RMB. Consequently, the average trading amount in September is actually 3.5 times the adjusted amount in March, reflecting a growing interest in option mock trading from the investors.

3.2 Amount Distribution Over Contract Months

During the mock trading competition in April, the amount traded in current month contract comprises 68% of total amount. The amounts traded in current month contracts for other periods make up half of the total amounts. In addition, the amounts in the three near-term months account for 75% to 90%. But the amount distributions of non-current months vary from pie to pie.

Exhibit 8: Amount distribution over various contract months*



*The period here is from one expiration date to the next.

Source: Wind Information, ZRF Option Division

3.3 Amount Distributions Over Moneyness

In April, the amount distribution over moneyness is rather wide, with heavy amounts in both at-the-money and out-of-the-money regions. This is because a lot of options are traded in the out-of-the-money region during April. For other months, the trading amounts are distributed around at-the-money and slightly in-the-money regions, which are more reasonable. A long tail towards one side can be observed for both June put and September call. The reason is explained in section 1.3. In addition, since in-the-money

options are more costly than out-of-the-money options, the long-tail effect is more pronounced in the in-the-money region and less so in the out-of-the-money region.

Exhibit 9a: Amount distributions of call over various degrees of moneyness

Month Moneyness	2014-04	2014-05	2014-06	2014-07	2014-08	2014-09
<= 0.81	0.17%	0.03%	0.02%	0.00%	0.00%	0.00%
0.81-0.83	0.39%	0.06%	0.01%	0.00%	0.00%	0.00%
0.83-0.85	0.17%	0.02%	0.00%	0.00%	0.00%	0.00%
0.85-0.87	0.34%	0.64%	0.90%	0.39%	0.00%	0.00%
0.87-0.89	1.20%	0.26%	0.34%	0.28%	0.00%	0.00%
0.89-0.91	4.81%	0.93%	0.99%	0.81%	0.23%	0.01%
0.91-0.93	12.15%	4.51%	1.58%	0.48%	0.40%	0.05%
0.93-0.95	3.32%	7.24%	2.65%	2.76%	2.64%	1.02%
0.95-0.97	2.40%	7.72%	2.72%	1.90%	1.35%	1.48%
0.97-0.99	8.48%	26.46%	7.17%	5.75%	3.53%	4.79%
0.99-1.01	16.51%	12.30%	14.37%	9.39%	9.41%	6.03%
1.01-1.03	11.87%	3.73%	12.38%	16.28%	12.97%	10.01%
1.03-1.05	10.60%	11.38%	11.45%	10.86%	5.37%	11.63%
1.05-1.07	8.45%	5.38%	18.57%	13.89%	9.29%	7.37%
1.07-1.09	1.32%	4.05%	9.94%	11.25%	12.52%	7.78%
1.09-1.11	1.52%	1.21%	6.37%	7.65%	7.38%	7.05%
1.11-1.13	1.09%	2.28%	4.77%	7.43%	7.13%	6.24%
1.13-1.15	2.13%	1.80%	5.31%	4.07%	4.07%	4.96%
1.15-1.17	0.60%	0.00%	0.46%	3.85%	8.17%	6.27%
1.17-1.19	5.35%	0.00%	0.00%	0.57%	6.46%	3.34%
1.19-1.21	7.13%	0.00%	0.00%	1.05%	1.08%	2.53%
1.21-1.23	0.00%	0.00%	0.00%	1.26%	3.43%	5.83%
1.23-1.25	0.00%	0.00%	0.00%	0.05%	4.43%	1.17%
1.25-1.27	0.00%	0.00%	0.00%	0.00%	0.15%	3.56%
> 1.27	0.00%	0.00%	0.00%	0.00%	0.00%	8.87%

Source: Wind Information, ZRF Option Division

Exhibit 9b: Amount distributions of put over various degrees of moneyness

Month Moneyness	2014-04	2014-05	2014-06	2014-07	2014-08	2014-09
<= 0.81	0.05%	0.74%	3.49%	0.00%	0.00%	0.00%
0.81-0.83	0.13%	0.40%	2.16%	0.00%	0.00%	0.00%
0.83-0.85	0.12%	0.28%	1.05%	0.00%	0.00%	0.00%
0.85-0.87	0.59%	2.76%	7.76%	3.05%	0.00%	0.00%
0.87-0.89	0.39%	1.26%	2.37%	3.69%	0.10%	0.00%
0.80-0.91	1.36%	5.77%	6.55%	6.05%	0.78%	0.10%
0.91-0.93	2.38%	3.20%	11.13%	11.46%	8.43%	1.28%
0.93-0.95	2.63%	14.68%	15.14%	17.34%	22.45%	10.11%
0.95-0.97	3.21%	3.71%	10.30%	10.99%	10.86%	17.50%
0.97-0.99	14.98%	20.29%	13.36%	14.03%	9.42%	23.41%
0.99-1.01	9.40%	18.91%	10.67%	10.59%	11.49%	14.57%
1.01-1.03	6.65%	17.41%	6.92%	8.42%	11.83%	13.61%
1.03-1.05	4.63%	7.91%	3.26%	6.76%	4.55%	6.01%
1.05-1.07	2.88%	1.58%	2.45%	2.46%	7.54%	4.02%
1.07-1.09	1.83%	0.66%	1.72%	2.32%	5.78%	2.59%
1.09-1.11	2.49%	0.15%	0.74%	0.97%	2.41%	1.61%
1.11-1.13	1.73%	0.16%	0.41%	0.77%	1.74%	2.11%
1.13-1.15	22.59%	0.13%	0.49%	0.55%	0.44%	0.47%
1.15-1.17	11.63%	0.00%	0.01%	0.24%	0.63%	1.03%
1.17-1.19	0.28%	0.00%	0.00%	0.11%	0.37%	0.19%
1.19-1.21	0.04%	0.00%	0.00%	0.02%	0.01%	0.12%
1.21-1.23	0.00%	0.00%	0.00%	0.17%	0.46%	0.67%
1.23-1.25	0.00%	0.00%	0.00%	0.01%	0.68%	0.27%
1.25-1.27	0.00%	0.00%	0.00%	0.00%	0.02%	0.17%
> 1.27	0.00%	0.00%	0.00%	0.00%	0.00%	0.17%

Source: Wind Information, ZRF Option Division

4 Implied Volatility

4.1 Time Series of Implied Volatility

The implied volatility during April was affected by the mock trading competition, thus was relatively higher and more volatile compared with other months. This can be explained by the enthusiasm of investors crowding into the market and pushing up option prices. Also, it reflects the facts that most investors were bad at pricing options and market-making system was absent.

After the mock trading competition, the implied volatilities gradually dropped. During the market-maker competition in June, it is obvious that the implied volatilities across all contracts were reduced to about 25%

and much more stable than other periods, reflecting the abilities of market makers to effectively stabilize the option market. After the June 20th when market-maker competition ended, the implied volatilities started to fluctuate again, but the average volatility of implied volatilities was smaller than March and April.

Exhibit 10a: Time Series of Call Implied Volatility of ATM Options

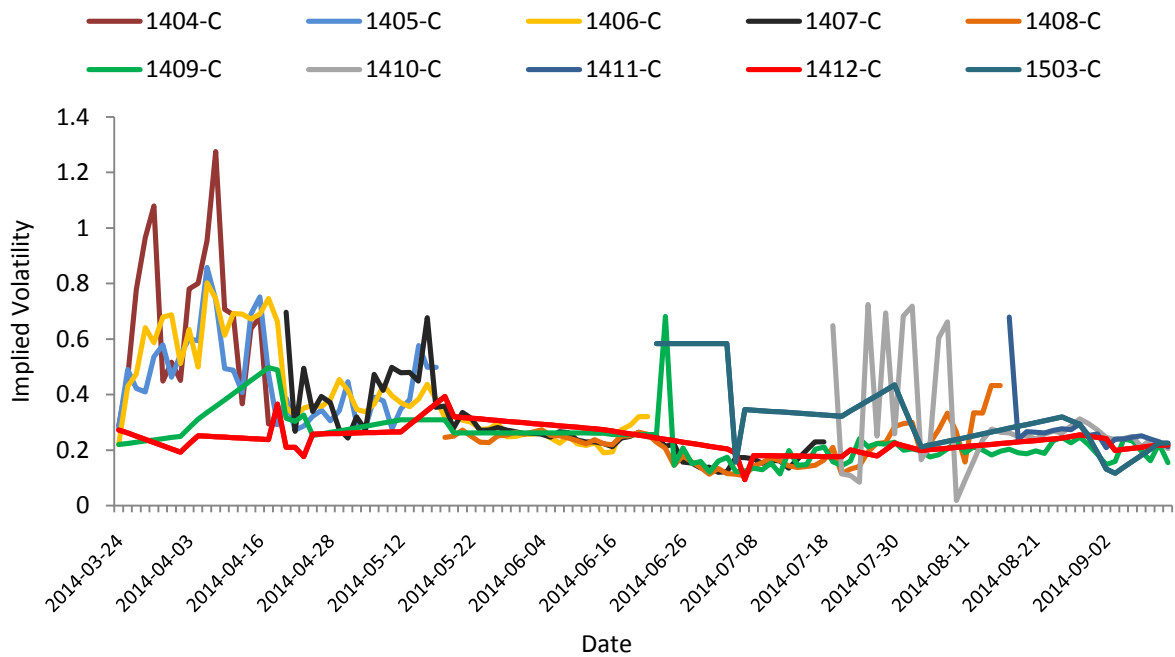
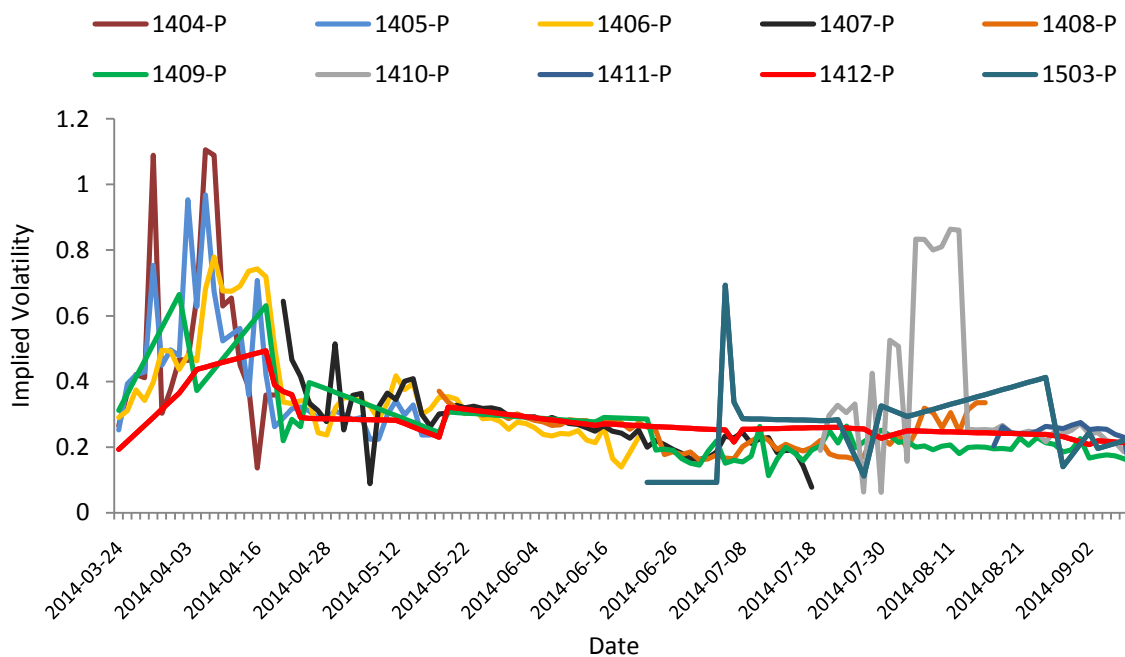


Exhibit 10b: Time Series of Put Implied Volatility of ATM Options



Source: Wind Information, ZRF Option Division

4.2 Implied Volatility Surface

The implied volatility of a developed market usually exhibits the structure of volatility smile. When we look at the implied volatility surface in mock trading market, a stable volatility smile structure is not observed. This suggests the inability to price options for most investors. It can be seen that the implied volatilities in April are the highest, while those in June and July are remarkably reduced, and implied volatilities in September are the lowest of all months.

Exhibit 11a: Call Implied Volatility at the Beginning of Each Month*

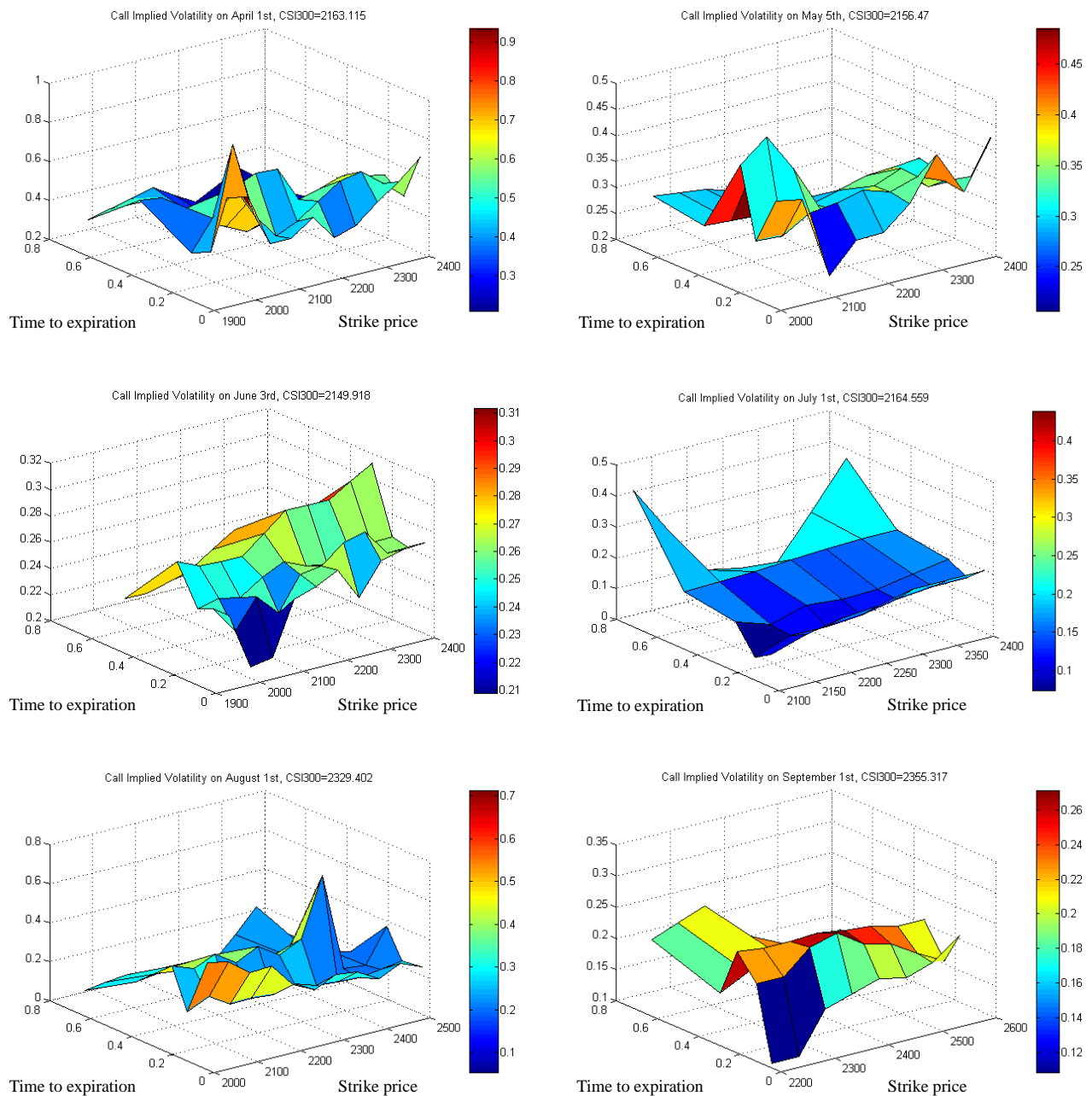
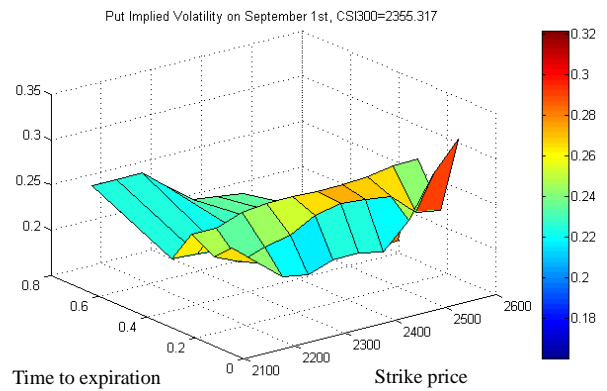
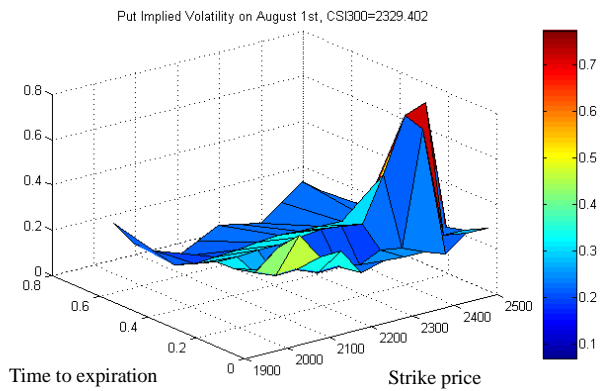
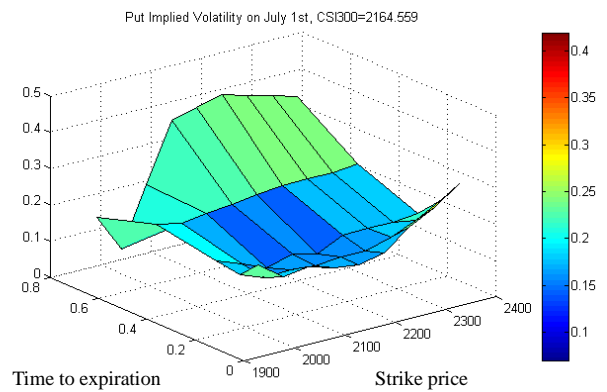
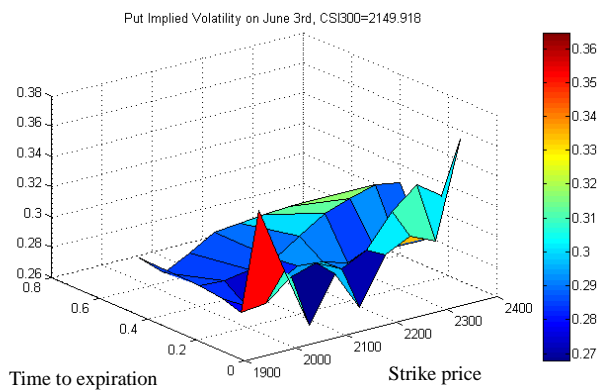
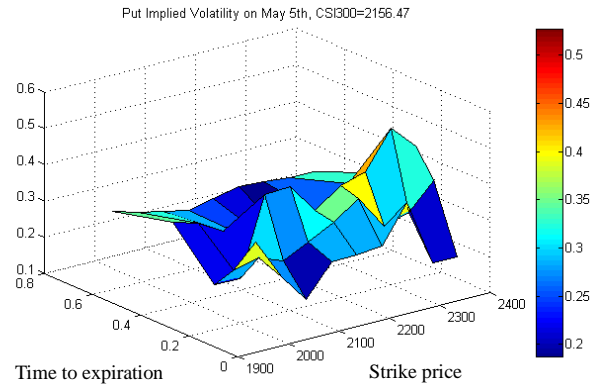
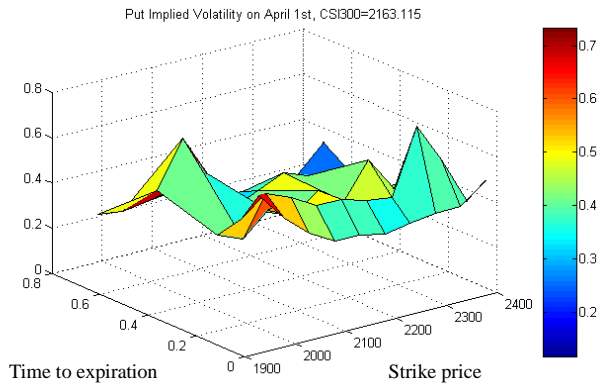


Exhibit 11b : Put Implied Volatility at the Beginning of Each Month



Source: Wind Information, ZRF Option Division

Disclosure

The information, tools and material presented in this report are provided to you for reference only and shall not be used or considered as an offer or the solicitation of an offer to sell or to buy or subscribe for securities or other financial instruments. The contents of this report do not constitute investment advice to any person and Zhong Rong Hui Xin Futures Co.,Ltd. (ZRF) will not treat recipients as its customers by virtue of their receiving the report. The copyright of this report and the materials used in this report belong to ZRF unless the materials are quoted with statement. If you want to quote or publish the report, please indicate the source and do not quote against the initial intention, abridge or modify the content.



25F GC Tower, No 1088 Yuanshen Road, Pudong District,
Shanghai, 200122