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Market Efficiency or Not? The Behaviour of China's Stock Prices in Response to the Announcement of Bonus Issues

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Keywords
Efficient Market Hypothesis (EMH); Semi-strong Form Efficiency; Event Study; Announcements of Proposal or Approval; Under-reaction and Overreaction.

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Centre for International Economic Studies

Discussion Paper
No. 0120

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Michelle L. Barnes and Shiguang Ma

May 2001

Adelaide University
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ABSTRACT

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JEL Classification: G14; G18; O16.

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1. Introduction

China's Stock Market (CSM) is a new emerging market with two stock exchanges. The Shanghai Stock Exchange was established in December 1990, and the Shenzhen Stock Exchange was established in April 1991. A-shares and B-shares trade on both of these exchanges. A-shares are accessible by Chinese residents with Chinese currency, while B-shares are limited to foreign investors with U.S. Dollars on the Shanghai market and Hong Kong Yuan on the Shenzhen market. CSM has developed rapidly for the past ten years. By July 2000, there were 1004 listed companies with market capitalization of 4000 billion Renmin Bi (RMB).[1]

According to the Efficient Market Hypothesis (EMH, Fama (1970)), if the stock prices reflect the announcement of public information instantaneously and unbiasedly, the market should be classified as semi-strong form efficient market. Fama, Fisher, Jensen and Roll (FFJR) (1969) examined 940 stock splits on the NYSE between 1927 and 1959. In their studies, returns are higher immediately following the announcement of the splits. There is no evidence that abnormal returns are available due to price over- or under-reaction to the announcement. Brown (1970) tested the impact of the announcement of annual profits on share prices for a sample of 118 Australian companies in the period from 1959 to 1968. In a subsequent study, Brown (1972) examined the impact of the release of half-yearly reports on share prices. Both his studies suggest that the market anticipates the new information, and that the share prices react rapidly to the unanticipated component of the information. Scholes (1972) tested whether the magnitude of price decline is a function of the volume of the shares sold in the secondary distribution, or is related to selling pressure from new shareholders attempting to earn abnormal return after they purchase the shares in the secondary distribution. He found that the price decline corresponds to block selling of insiders. Therefore, the market inefficiently reflects the announcement of the secondary distribution.

Brown *et al* (1977) conducted a combined study on announcements of profits and announcements of dividends, as they are usually released simultaneously. Six subgroups of the shares were constructed, in terms of combination of profit and dividend increase or

decrease. The results show that returns on the shares reflect the content of the two sources of information precisely. As a consequence, semi-strong form efficiency can be inferred from the Brown *et al* studies. Rendleman *et al* (1987) tested the behaviour of stock prices during the weeks surrounding an earnings announcement. They distinguished between expected earnings and unexpected earnings, and maintained the proposition that only unexpected earnings announcements pass on new information to investors. The unexpected earnings were categorised into ten groups, from high value (positive) to low value (negative). They found that post-announcement drifts of returns show that stock prices overreact to the announcements, which is inconsistent with the semi-strong form efficient market hypothesis. Foster *et al* (1984) and Bernard and Thomas (1990) presented similar results, which show that the stock prices fail to fully reflect the implication of current earnings. Previously announced earnings predict the future abnormal returns.

However, who knows whether or not the Chinese stock prices of the new emerging markets reflect the public information efficiently? Studies on the semi-strong form of market efficiency for China have been limited to Chinese publications until now. This paper provides an initial investigation of the CSM stock price behaviour in reaction to the announcement of bonus issues.[2] The analysis demonstrates the different responsiveness of China's shares traders to the announcements of bonus issues' proposals and approvals respectively, as well as the A-shares holders' and the B-shares holders' attitude towards receiving information about bonus issues' approvals. Furthermore, the empirical results show that either the A-shares or B-shares prices react to the announcements depending upon the specific issue schemes. Both efficiency and inefficiency evidence are found in the statistics tested on different portfolios.

Section 2 illustrates the bonus issues and the relevant information content of these actions; Section 3 describes the methodology employed in this paper and the data; Section 4 discusses the results of the tests on the announcement of bonus proposals for A-shares; Section 5 discusses the results of the tests on the announcement of bonus approvals for A-shares; Section 6 discusses the results of the tests on the announcement of bonus approvals for B-shares; and Section 7 concludes this paper.

[1] In July 2000, 1 US$ was equal to about 8.3 RMB.s

[2] The authors have related papers on the announcements of zero-dividend issues, cash-dividend issues and rights issues respectively.

2. Bonus Issues and Informational Content

A bonus issue is a “free” issue of shares, without a subscription price, made to existing shareholders in proportion to their current investment. A company can distribute bonus shares by using retained profits (stock dividends) or accumulated capital reserves. In China, the majority of companies prefer to issue the bonus from accumulated capital reserves, or from a combination of both capital reserves and retained profits.

That a bonus issue does not alter shareholder wealth was primarily put forward by Miller and Modigliani (1961). For example, a company plans to finance a bonus issue from retained profits. The company is just required a simple book entry to allocate retained profits into paid-up capital in the shareholders’ funds section of the company balance sheet. Alternatively, a company that decides to realise a bonus issue by using accumulated capital reserves needs only to adjust the accumulated capital reserves into paid-up capital. The company does not receive any cash and its financial position remains the same. The modification triggered by the bonus issue is that the number of outstanding shares is adjusted by the bonus issue ratio, therefore, the price of the shares declines according to the same bonus issue ratio. The total market value of the shares or the values of the shares that are held by each investor should remain unchanged. Sloan (1987) provided Australian evidence that bonus issues do not affect shareholders’ wealth.

However, in practice there may be an increase in share price following the announcement of a bonus issue. Such an increase can occur because the announcement of a bonus issue may have beneficial informational content (Peterson 1971). Shareholders are aware that, after the bonus issue, companies usually raise dividends per share above the extent necessary to maintain the same total dividend payout. This, in turn, indicates the confidence of management in the company’s future. Consequently, the share price may increase in response to this information.

Also, management may believe that reducing the market price per share to a reasonable level can facilitate transactions and this may increase the demand for the company’s shares. If this were true, the market value of the company’s equities would increase. An alternative way to reduce market price per share is a stock split, which represents a reduction in the par value. The essential difference between a bonus issue and a stock split is that a stock split need not be accompanied by a book entry to relocate the retained profits or accumulated reserves into paid-up capital in the shareholders’ funds section of the company balance sheet.

According to Chinese regulations, shareholders must pay tax for a cash dividend but not for a stock dividend, i.e. they need not pay tax on the bonus, which makes the bonus more favourable. However, this may not mean that the Chinese shareholders welcome all bonus issues. In fact, their preference is for a high ratio bonus rather than a low ratio bonus.[3] The low ratio bonus may not convey the same informational content as the high ratio bonus.

a. Methodology and Data

i. Event Study and the Models

The standard methodology used to evaluate the reaction of share prices to public announcements is an *event study*, which was employed as early as 1933 by Dolley. Over the past half century, event studies have been employed in much research and their sophistication has been greatly improved by papers such as FFJR (1969) and Brown and Warner (1980, 1985). To construct an event study, the "*event*," "*event window*," "*estimation window*," "*investigation widow*" and "*estimation model*" should be determined.

The *event* is what the investigators would like to study, and it conveys information that potentially influences the stock prices. The events defined for this study are the announcements of bonus proposals or bonus approvals. An *event window* is the period in which an event occurs. Strictly speaking, an event window should be a period when the occurrence of the event is publicly announced. In the case that the event is announced after trading hours and then impacts on the next day's prices, or that there is a time difference in the announcements in different news media, the event window is expanded to three days. Thus, the event window in this study is combined with the day of the announcement and the days preceding and succeeding the announcement day, which are numerically expressed as –1, 0, +1. The period of data used in the estimation of parameters is known as an *estimation window*. The *estimation window* in this study is defined from the day –150 to the day –21 before the announcement data 0. In an event study, both the abnormal returns occurring during the time of the event window and the abnormal returns occurring in the periods around the event window must to be investigated. The abnormal returns occurring in an interval before the event window can show us whether the market has anticipated the information (or implied inside information) contained in the event, while the abnormal returns in an interval after the event window can tell us whether the market over- or under-reacts to the

[3] Bonus Ratio = Number of bonus shares in the issue/number of existing shares applicable for the bonus issue.

announcement of the event. The *investigation window* in this study is an extension of the event window, from day –20 through day +20.

The selected *examination models* for this study are the market-adjusted model and the market model. The market-adjusted model is

$$r_{i,t} = r_{m,t} + \varepsilon_{i,t},$$

where $r_{i,t}$ is the return of stock *i* at day *t*, $r_{m,t}$ is the market return at time *t*, as calculated from a market portfolio or a market index,[4] and $\varepsilon_{i,t}$ is the abnormal return of stock *i* at day *t*. Thus, the market-adjusted model assumes that the normal returns are equal across all stocks at time *t*, but not necessarily constant for a given security at different times. The abnormal return on any stock *i* is determined by the difference between its return and that on the market portfolio simultaneously,

$$\varepsilon_{i,t} = r_{i,t} - r_{m,t}.$$

The market model is

$$r_{i,t} = \alpha_i + \beta_i r_{m,t} + \varepsilon_{i,t},$$

where α_i is the intercept term, and β_i measures the marginal effect of the market return on the return of stock *i*. Here, the parameters of the market model are estimated from a regression of the returns on a stock and the market portfolio in the estimation window, day –150 through day –21. The abnormal return (residual) on any stock *i* in the event window (or investigation window) is measured by the difference between its actual return and the predicted return. Hence:

$$\varepsilon_{i,t} = r_{i,t} - \hat{\alpha}_i + \hat{\beta}_i r_{m,t},$$

where $\hat{\alpha}_i$, $\hat{\beta}_i$ are the estimates of α_i, β_i. The *t*-statistic for abnormal returns on an event date, in this case, *t* = –1, 0, +1, is

$$t_* = \bar{\varepsilon}_t / \hat{s}(\bar{\varepsilon}_t),$$

[4] Since there is not an index across both the Shanghai and Shenzhen markets and there is segmentation of the A-shares and B-shares markets, the SSE-A, SZS-A, SSE-B and SZS-B will be employed as market indices when we test Shanghai A-shares, Shenzhen A-shares, Shanghai B-shares and Shenzhen B-shares respectively.

where $\bar{\varepsilon}_t$ is average abnormal return of stocks involved in the test at day *t*, and $\hat{s}(\bar{\varepsilon}_t)$ is the corresponding standard deviation. Mathematically, we have:

$$\bar{\varepsilon}_t = \frac{1}{N_t} \sum_{i=1}^{N_t} \varepsilon_{i,t} \text{ , and } \hat{s}(\bar{\varepsilon}_t) = \sqrt{\left[\sum_{t=-150}^{-21} (\bar{\varepsilon}_t - \bar{\bar{\varepsilon}})^2 \right] \Big/ 129} \,,$$

where N_t is the number of stocks involved in the test at day *t*, $\bar{\bar{\varepsilon}}$ is the average abnormal return of N_t stocks from day –150 to day –21, such that

$$\bar{\bar{\varepsilon}} = \frac{1}{130} \sum_{t=-150}^{-21} \bar{\varepsilon}_t \,.$$

Masulis (1980), Brown and Warner (1985), and Corrado and Zivney (1992) have used these statistics. The *t*-statistic for abnormal returns in an interval is

$$t_{a,b} = \sum_{t=a}^{b} \bar{\varepsilon}_t \Big/ \left[\sum_{t=a}^{b} \hat{s}^2(\bar{\varepsilon}_t) \right]^{1/2} .$$

The first and last days of the interval are *a* and *b*, which are selected as –10 to 0, –10 to +10, 0 to +10, and so forth in this study. $\bar{\varepsilon}_t$ and $\hat{s}(\bar{\varepsilon}_t)$ are the same as before.[5]

In the case of a skewed distribution of abnormal returns, we apply a non-parametric rank test on the event date. The *t*-statistic (Corrado 1989) is

$$t_k = \frac{1}{N_t} \sum_{i=1}^{N_t} \left(k_{i,t} - \frac{l+1}{2} \right) \Big/ s(k_t) \,,$$

where $k_{i,t}$ denotes the rank of an abnormal return and $\varepsilon_{i,t}$ is an abnormal return time series. l is the number of abnormal returns in the time series. In this paper, the time series is constructed by 170 abnormal returns in the estimation window plus the event window and the investigation period. Therefore the expected rank of an abnormal return should be $(l+1)/2$ = 85.5 in this rank test. Thus

$$s(k_t) = \sqrt{\frac{1}{171} \sum_{t=-150}^{+20} \left[\frac{1}{N_t} \sum_{i=1}^{N_t} (k_{i,t} - 85.5) \right]^2} \,.$$

All of the tests in the event studies are conducted at the 5% or 1% significance level.

[5] Campbell *et al* (1997) also formulates this *t*-statistic in matrices.

ii. Daily Stock Return Data and Portfolio Construction

Previous literature exhibits the use of both monthly and daily stock return data employed in event studies. For example, FFJR (1969), and Brown and Warner (1980) used monthly stock return data, whereas, Scholes (1972), Corrado (1989), and Frankfurter and Schneider (1995) used daily stock return data. Theoretically, daily data and monthly data may differ in potentially important respects: daily returns depart more from normality than monthly returns (Fama 1976), the estimation of parameters from daily returns is complicated due to non-synchronous trading (Scholes and Williams 1977), and daily returns have smaller standard deviation than do the monthly returns (Brown and Warner 1985).

However, Brown and Warner (1985) showed in their simulation that the non-normality of daily returns has no obvious impact on event study methodologies. They provided evidence that the mean abnormal returns in a cross-section of securities converge to normality as the number of securities in the sample increases. Their study argued that standard parametric tests are well-specified using daily abnormal returns computed using either the market model or the market-adjusted model, and, as expected, the power of each test is greater with daily returns than with monthly returns. In addition, the use of daily returns is potentially effective in that it permits the researcher to take advantage of precise information about the specific day of the month on which an event takes place.

Using daily data in this study is most appropriate due to the special characteristics of CSM. CSM have been open for only nine years and the majority of companies were listed after 1995. Thus, the sample size for monthly observations of a stock and the numbers of stocks with sufficient observations are both too small to satisfy the requirements of the statistical tests. Further, an assumed estimation window of 36 monthly observations covers three years in which the same event, such as the announcement of a dividend issue, may happen at least three times. Although 36 observations is sufficient for generating abnormal returns for a study on dividend issues, in the present application this estimation would be biased because of the influences of other economically significant events which can occur during this estimation window. All of the stock prices in this study have been adjusted for changes in currency of denomination, stock splits, dividend issues, bonus and rights issues before the returns were calculated.

The bonus issues analysed in this study are limited to the period from 1994 to 1998 for the following reasons. Firstly, because neither the Shanghai nor the Shenzhen stock market were regularly operated in the initial period before 1993, the bonus issues of the two markets

had not been determined by formal regulation. Secondly, the legislation negotiated by each market had not been unified prior to 1993, so that the same event on the two markets may have had different characteristics. Thirdly, the professional financial newspapers, which are authorised by the China Security Regulation Commission for publishing information about stock markets, were first issued around the end of 1993. The official annual yearbooks of the stock exchanges, which contain the records of relevant events, were regularly published only after 1993. Therefore, consistent references to events which occurred prior to 1993 cannot be obtained.

In China, the bonus (and other important) issues are scheduled and the related information is released as follows. The manager puts forward the suggestion of a proposal to the Board of Directors. If it is accepted, following the negotiation between the directors in the Board of Directors, a scheme of the proposal is filed and will be announced in two days. About three months later, the proposal is voted on by the coming Conference of the Representatives of Shareholders. In general, the scheme of the proposal can be approved by the representatives of the shareholders, and will be announced in two days immediately after the vote. The announcements are usually published on the notice board of the stock exchange via the transaction system, and in authorised financial newspapers.

The construction of the portfolios used in this study takes into consideration the following aspects: Stock prices may react to the announcements of proposals and approvals in different ways and share traders may have different preferences for the different bonus issues schemes. For the latter, we classified the small-bonus portfolio as that which includes issues with bonus ratios less than or equal to 2 for 10; the middle-bonus portfolio includes the issues with bonus ratios larger than 2 for 10, but less than or equal to 4 for 10; and the large-bonus portfolio consists of issues with the bonus ratios larger than 4 for 10. Therefore, twelve portfolios are examined.

b. Tests on the Announcement of Bonus Proposals for A-shares

A total of 196 bonus proposals of A-shares are constructed into three portfolios. The small-bonus portfolio includes 103 proposals. The middle-bonus portfolio includes 37 proposals. The large-bonus portfolio includes 56 proposals. This study considers the different effects of the announcement of bonus proposals for each classification of shares.

i. A-shares Return Behaviour Around the Announcement of Bonus Proposals

The results of the tests on the announcement of bonus proposals are summarised in Table-1. Table-1, Panel (a) presents the Cumulative Abnormal Returns (CARs) of each portfolio around the announcement date of the bonus proposals. Figure-1(1) graphs the CARs measured by the market adjusted model and Figure-1(2) graphs the CARs measured by the market model. From these figures it can be seen that the CARs of all bonus proposals ("Overall" portfolio) at date +20 are positive and the relevant lines are above the zero return axis. Therefore, on average, the bonus proposals raise positive CARs around the announcement date. That the announcement of bonus proposals, on average, has a positive effect on China's stock prices coincides with the evidence of Ball *et al* (1977) for Australian stock prices. However, this is difficult to make sense of since the CARs of an "Overall" portfolio are an aggregate of different types (sizes) of bonus issues. For deeper comprehension, the analysis should be decomposed into the small-bonus, middle-bonus and large-bonus portfolios individually.

Table-1. Results of the Tests on the Announcement of Bonus Proposals for A-shares in China's Stock Market

(a). Cumulative Abnormal Returns (CARs)

	Market Adjusted Model				***Market Model***			
Date	*Small*	*Middle*	*Large*	*Overall*	*Small*	*Middle*	*Large*	*Overall*
-20	-0.0025	0.0086	0.0030	0.0010	-0.0025	0.0087	0.0033	0.0011
-18	-0.0033	0.0227	0.0068	0.0042	-0.0044	0.0237	0.0044	0.0030
-16	-0.0043	0.0282	0.0118	0.0060	-0.0050	0.0296	0.0081	0.0048
-14	-0.0079	0.0289	0.0162	0.0054	-0.0091	0.0323	0.0107	0.0038
-12	-0.0069	0.0298	0.0326	0.0107	-0.0073	0.0331	0.0238	0.0086
-10	-0.0070	0.0408	0.0426	0.0154	-0.0070	0.0442	0.0312	0.0128
-8	-0.0067	0.0490	0.0499	0.0191	-0.0069	0.0532	0.0365	0.0159
-6	-0.0032	0.0521	0.0606	0.0246	-0.0024	0.0573	0.0456	0.0217
-4	-0.0016	0.0589	0.0791	0.0318	-0.0014	0.0655	0.0616	0.0282
-3	-0.0045	0.0682	0.0922	0.0356	-0.0044	0.0756	0.0739	0.0318
-2	-0.0064	0.0835	0.1101	0.0424	-0.0053	0.0917	0.0913	0.0391
-1	-0.0099	0.0844	0.1315	0.0466	-0.0083	0.0921	0.1129	0.0436
0	-0.0163	0.0961	0.1352	0.0462	-0.0156	0.1034	0.1156	0.0424
+1	-0.0253	0.0943	0.1329	0.0404	-0.0240	0.1011	0.1120	0.0364
+2	-0.0279	0.0864	0.1300	0.0368	-0.0266	0.0929	0.1087	0.0327
+3	-0.0342	0.0861	0.1301	0.0334	-0.0328	0.0941	0.1087	0.0295
+4	-0.0390	0.0744	0.1359	0.0304	-0.0364	0.0829	0.1134	0.0269
+6	-0.0469	0.0808	0.1383	0.0279	-0.0444	0.0898	0.1141	0.0240
+8	-0.0543	0.0760	0.1370	0.0227	-0.0527	0.0867	0.1108	0.0180
+10	-0.0584	0.0693	0.1382	0.0196	-0.0569	0.0820	0.1115	0.0151
+12	-0.0612	0.0734	0.1416	0.0197	-0.0602	0.0869	0.1131	0.0146
+14	-0.0611	0.0725	0.1378	0.0186	-0.0609	0.0864	0.1084	0.0128
+16	-0.0677	0.0696	0.1435	0.0161	-0.0665	0.0839	0.1107	0.0100
+18	-0.0758	0.0604	0.1424	0.0098	-0.0738	0.0749	0.1073	0.0035
+20	-0.0768	0.0701	0.1501	0.0131	-0.0747	0.0852	0.1129	0.0064

Notes: 1. Small: the sample of 103 proposals with bonus ratios less than or equal to 2 for 10.
2. Middle: the sample of 37 proposals with bonus ratios larger than 2 for 10, but less than or equal to 4 for 10.
3. Large: the sample of 56 proposals with bonus ratios larger than 4 for 10.
4. Overall: the sample of all 196 bonus proposals.
5. Date 0: the date of the announcement.
6. Date -1 to -20: the dates before the announcement.
7. Date +1 to +20: the dates after the announcement.

(b). Parametric and Nonparametric t-test Statistics on the Abnormal Returns for the Specific Event Date

Parametric t-test Statistics								
	Market Adjusted Model				***Market Model***			
Date	*Small*	*Middle*	*Large*	*Overall*	*Small*	*Middle*	*Large*	*Overall*
-1	-1.4686	0.2271	4.8274	2.2861	-1.2333	0.1016	4.9716	2.4483
0	-2.6774	2.9840	0.8314	-0.1984	-3.0585	2.9005	0.6280	-0.6539
+1	-3.7246	-0.4711	-0.5208	-3.1188	-3.4846	-0.5993	-0.8397	-3.2213
Nonparametric (rank) t-test Statistics								
	Market Adjusted Model				***Market Model***			
Date	*Small*	*Middle*	*Large*	*Overall*	*Small*	*Middle*	*Large*	*Overall*
-1	-0.9857	-0.3233	3.7402	2.1075	-0.8704	-0.6090	3.8881	2.1882
0	-2.4690	2.1945	0.1371	-1.4443	-2.9917	2.1627	0.2012	-1.8196
+1	-3.0469	-0.3267	-1.1088	-3.1281	-2.6191	-0.3737	-1.0362	-2.7443

Notes: 1. Date 0: event date, the date of the announcement.
2. Date -1: alternative event date, the announcement may occur one day in advance of that on record.
3. Date +1: alternative event date, the announcement may occur one day later than that on record.
4. If the *t*-test statistic is larger in absolute value than 1.96 or 2.58, the relevant abnormal return is statistically non-zero at the 5% or 1% significance level, respectively.

(c). Parametric t-test Statistics on the Cumulative Abnormal Returns (CARs) in Intervals around the Event

	Market Adjusted Model				***Market Model***			
Intervals	*Small*	*Middle*	*Large*	*Overall*	*Small*	*Middle*	*Large*	*Overall*
11 Days Around Event Day								
-5 to -1	-1.2563	3.6775	7.1753	5.2882	-1.0922	3.9797	6.9302	5.2798
+1 to +5	-5.3707	-1.8524	0.1694	-4.3195	-4.8561	-1.7378	-0.2943	-4.2475
-5 to +5	-5.2752	2.1302	5.2025	0.5933	-4.9325	2.3860	4.6633	0.4988
21 Days Around Event Days								
-10 to -1	-0.2522	4.0716	6.4773	5.6685	-0.0294	4.4296	6.0100	5.5865
+1 to +10	-5.5380	-2.1574	0.2154	-4.5190	-5.4226	-1.7356	-0.3036	-4.6505
-10 to +10	-4.5798	1.9720	4.7999	0.7499	-4.4297	2.4920	4.0748	0.5033
41 Days Around Event Day								
-20 to -1	-0.9225	4.8026	6.6504	5.5894	-0.7688	5.2740	5.8162	5.2539
+1 to +20	-5.6350	-1.4802	0.7536	-3.9747	-5.4880	-1.0414	-0.1409	-4.3310
-20 to +20	-4.9981	2.7865	5.3010	1.0968	-4.8476	3.4091	4.0619	0.5424

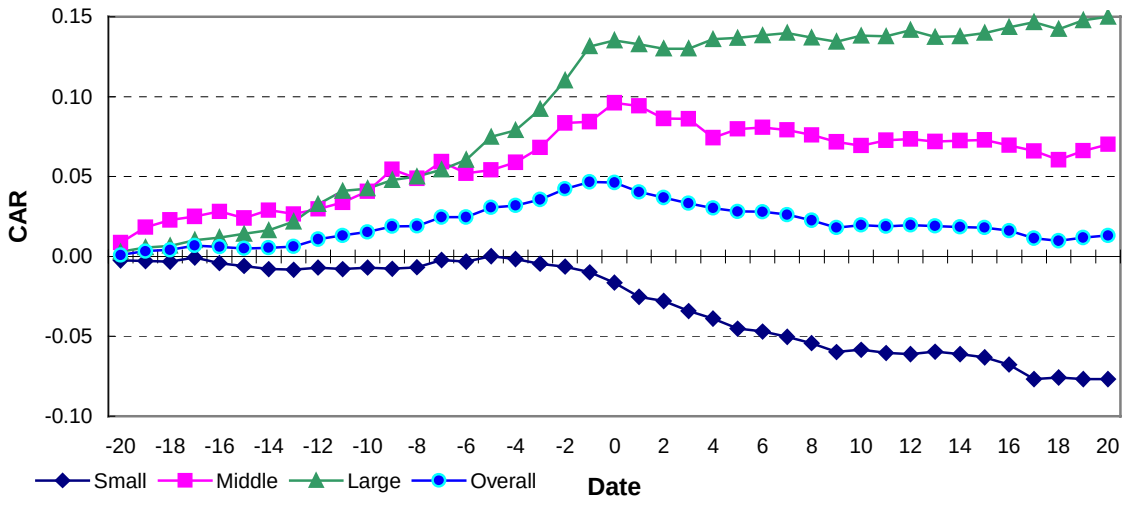
Notice: If the *t*-test statistic is larger in absolute value than 1.96 or 2.58, the relevant CARs of the intervals are statistically non-zero at the 5% or 1% significance level, respectively.

From this disaggregation into three portfolios we learn that the shareholders discriminate against the small-bonus stocks by responding to the small-bonus proposals with negative returns. The CARs of small-bonus stocks are negative at the start of the investigation period and drop markedly after the announcement date. At the date of +20, the CARs of small-bonus stocks decline below -7.0%. Conversely, the shareholders respond favourably to the middle-bonus and large-bonus proposals, resulting in positive returns. The CARs of middle-bonus and large-bonus stocks begin positively and grow rapidly until the announcement date, and

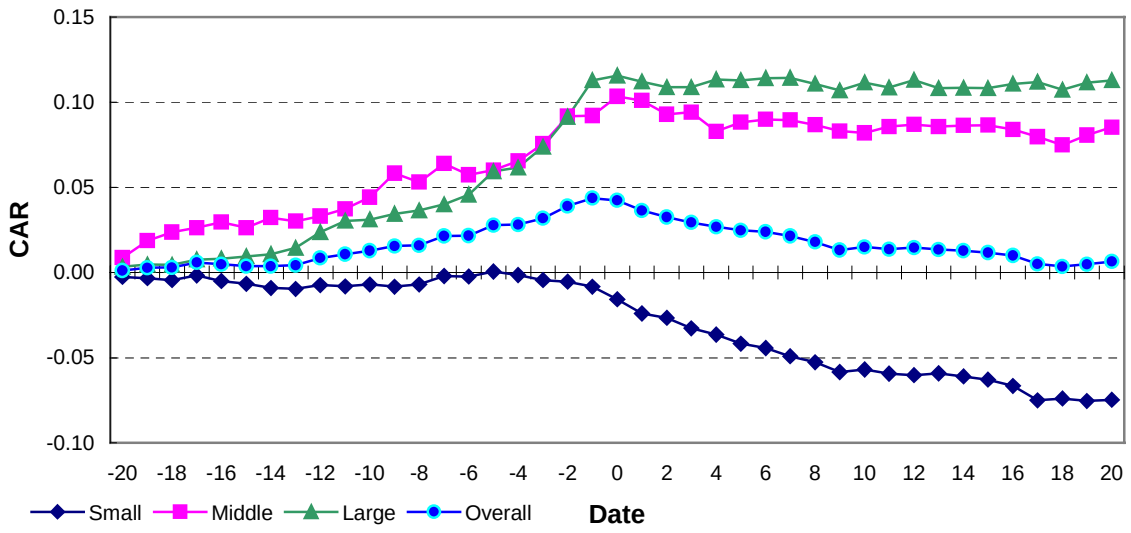
then remain relatively stable thereafter. At the end of the investigation period, the CARs of middle-bonus and large-bonus stocks are above 7.0% and 11.0% respectively. The CARs are more explicitly at the levels in line with the bonus ratios following the announcement date.

Figure-1. Cumulative Abnormal Returns (CARs) for Bonus Proposals of A-shares in China's Stock Market

(1). Market Adjusted Model Cumulative Abnormal Returns (CARs)



(2). Market Model Cumulative Abnormal Returns (CARs)



Both the parametric and non-parametric *t*-test statistics in Table-1, Panel (b) suggest that the share traders react to the announcement of bonus proposals at the event dates both significantly and in suitable directions. The *t*-values of small-bonus stocks are below -1.96 or -2.58 at event dates 0 and +1, which illustrates that the small-bonus proposals represent unfavourable information at conventional levels of significance. Meanwhile, the *t*-values of middle-bonus and large-bonus stocks are larger than +1.98 or +2.58 at the event date 0 or at alternative event date –1. This implies that the middle-bonus and large-bonus proposals are considered to be favourable information at conventional significance levels.

Table-1, Panel (c) shows significantly negative CARs in the intervals of dates –5 to +5, –10 to +10 and –20 to +20 around the announcement date 0 for the small-bonus stocks, but significantly positive CARs for the middle-bonus and large-bonus stocks. Moreover, the significantly negative CARs are generated mainly in the intervals of dates +1 to +5, +1 to +10 and +1 to +20 after the announcement date for the small-bonus stocks. Meanwhile, the significantly positive CARs are generated mainly in the intervals of –5 to –1, –10 to –1 and –20 to –1 before the announcement date for the middle-bonus and large-bonus stocks. The CARs in intervals are presented graphically in Figure-1, Panels (1) and (2).

ii. Assessment of Market Efficiency for A-shares on the Announcement of Bonus Proposals

The *t*-values at the event date 0 are below -1.96 or -2.58, illustrating that the stock prices react to the small-bonus proposals at the 5% or 1% significance level. Hoverer, the *t*-values on the CARs in the intervals of dates +1 to +5, +1 to +10 and +1 to +20 after the announcement are below -2.58, which indicates that the small-bonus proposed stock prices under-react to the announcement at the event date. This under-reaction is corrected at least in the 20 days after the announcement. Thus, there exists a strategy permitting abnormally high returns for the small-bonus stock investors. Suppose that the small-bonus shareholders sell their shares at the announcement date and buy the same shares after 20 days. This strategy will provide a gain of 6%.[6] Thus, the hypothesis of informational efficiency for the small-bonus stock is refuted.

[6] ((-0.0163)-(-0.0768))*100%=6.05%, abnormal returns are measured by the market adjusted model; ((-0.0747)-(-0.0156))*100%=5.91%, abnormal returns are measured by the market model.

In contrast to the small-bonus stocks, the large-bonus stocks have positive *t*-values greater than +2.58 at the alternative event date –1 and for the intervals of dates –5 to –1, –10 to –1 and –20 to –1 before the announcement date, instead of after the announcement date. This implies that despite some shareholders anticipating the information or obtaining inside information before the announcements, the stock prices still react to the large-bonus proposals significantly at the 1% significance level. The information contained in the large-bonus proposals is fully incorporated into the stock prices until the event date 0. If we ignore the possibility that inside information is being used, we must conclude that the stock prices reflect the large-bonus proposals efficiently.

The case of middle-bonus stocks is not as canonical as the cases of small and large-bonus stocks. It behaves most like that of large-bonus stocks. The *t*-values at the event date 0 and on the CARs in intervals before the announcement date are larger than +1.96 or +2.58, which illustrates a significant price reaction to the middle-bonus proposals at the announcement date and the possible anticipation or use of inside information. Furthermore, the negative *t*-values in each interval after the announcement date are comparatively smaller in absolute value (just one is below -1.96), suggesting that there is a slight overreaction. In other words, the stocks are overpriced with respect to the middle-bonus proposals prior to and at the event date and then are corrected thereafter. This results in the CARs moving in opposite directions before and after the announcement date. Nevertheless, it is fair to conclude that the stock prices are reasonably efficient in reflecting the information of middle-bonus proposals.

c. Tests on the Announcement of Bonus Approvals for A-shares

Using the same criteria as was used previously in grouping bonus proposals, we construct three bonus approval portfolios: the small-bonus portfolio of 172 bonus approvals, the middle-bonus portfolio of 89 bonus approvals and the large-bonus portfolio of 94 bonus approvals. The total of 355 bonus approvals includes the 196 cases analyzed above. We will seek to understand from this study the effects of the bonus approvals on the announced stock prices, and then, to find out the different influences that the bonus proposals and the bonus approvals have on stock prices.

i. A-shares Return Behaviour Around the Announcement of Bonus Approvals

The results of the tests on the announcement of bonus approvals are summarized in Table-2. Table-2, Panel (a) and Figure-2 report the CARs around the announcement of bonus approvals for each portfolio. Firstly, the large-bonus approved stocks perform better than the small-bonus approved stocks, which is consistent with the performances of large-bonus proposed stocks. This indicates that the investors are more interested in the announcement of large-bonus proposals and approvals than small-bonus proposals and approvals. Next, there are peaks of CARs at the alternative event date +2 of each portfolio; this indicates a delayed overreaction to the announcement of bonus approvals. These peaks are not evident in the CARs related to the bonus proposals.

Table-2. Results of the Tests on the Announcement of Bonus Approvals for A-shares in China's Stock Market

(a). Cumulative Abnormal Returns (CARs)

	Market Adjusted Model				***Market Model***			
Date	*Small*	*Middle*	*Large*	*Overall*	*Small*	*Middle*	*Large*	*Overall*
-20	0.0004	-0.0036	0.0009	-0.0004	0.0002	-0.0036	0.0001	-0.0007
-18	-0.0042	-0.0038	0.0056	-0.0017	-0.0067	-0.0053	0.0017	-0.0041
-16	-0.0119	-0.0077	0.0085	-0.0058	-0.0149	-0.0108	0.0022	-0.0094
-14	-0.0205	-0.0101	0.0159	-0.0088	-0.0251	-0.0158	0.0078	-0.0143
-12	-0.0213	-0.0093	0.0177	-0.0086	-0.0264	-0.0180	0.0078	-0.0154
-10	-0.0225	-0.0099	0.0184	-0.0091	-0.0277	-0.0208	0.0072	-0.0168
-8	-0.0260	-0.0090	0.0231	-0.0095	-0.0319	-0.0229	0.0110	-0.0184
-6	-0.0240	-0.0119	0.0271	-0.0082	-0.0314	-0.0285	0.0136	-0.0188
-4	-0.0302	-0.0111	0.0361	-0.0089	-0.0376	-0.0294	0.0214	-0.0201
-3	-0.0298	-0.0084	0.0412	-0.0067	-0.0381	-0.0272	0.0268	-0.0184
-2	-0.0326	-0.0046	0.0429	-0.0067	-0.0412	-0.0249	0.0277	-0.0191
-1	-0.0302	0.0002	0.0537	-0.0016	-0.0397	-0.0204	0.0382	-0.0146
0	-0.0219	0.0233	0.0802	0.0150	-0.0317	0.0030	0.0639	0.0017
+1	-0.0169	0.0307	0.0926	0.0224	-0.0273	0.0096	0.0754	0.0085
+2	-0.0196	0.0262	0.0908	0.0195	-0.0300	0.0036	0.0730	0.0051
+3	-0.0239	0.0229	0.0878	0.0158	-0.0348	-0.0001	0.0694	0.0009
+4	-0.0263	0.0122	0.0854	0.0112	-0.0371	-0.0112	0.0655	-0.0040
+6	-0.0245	0.0045	0.0781	0.0084	-0.0360	-0.0202	0.0565	-0.0078
+8	-0.0238	-0.0015	0.0657	0.0041	-0.0358	-0.0267	0.0420	-0.0129
+10	-0.0242	-0.0050	0.0635	0.0025	-0.0373	-0.0320	0.0393	-0.0156
+12	-0.0264	0.0033	0.0639	0.0036	-0.0412	-0.0237	0.0379	-0.0157
+14	-0.0324	0.0013	0.0607	-0.0007	-0.0478	-0.0272	0.0326	-0.0212
+16	-0.0352	0.0060	0.0615	-0.0007	-0.0511	-0.0248	0.0320	-0.0223
+18	-0.0354	0.0103	0.0702	0.0024	-0.0525	-0.0213	0.0393	-0.0202
+20	-0.0293	0.0067	0.0712	0.0048	-0.0466	-0.0283	0.0395	-0.0188

Notes: 1. Small: the sample of 172 approvals with bonus ratios less than or equal to 2 for 10.
2. Middle: the sample of 89 approvals with bonus ratios larger than 2 for 10, but less than or equal to 4 for 10.
3. Large: the sample of 94 approvals with bonus ratios larger than 4 for 10.
4. Overall: the sample of all 355 bonus approvals.
5. Date 0: the date of the announcement.
6. Date -1 to -20: the dates before the announcement.
7. Date +1 to +20: the dates after the announcement.

(b). Parametric and Nonparametric t-test Statistics on the Abnormal Returns for the Specific Event Date

Parametric t-test Statistics								
	Market Adjusted Model				***Market Model***			
Date	*Small*	*Middle*	*Large*	*Overall*	*Small*	*Middle*	*Large*	*Overall*
-1	1.2017	1.7096	3.0970	3.4240	0.7649	1.6214	3.1329	3.1091
0	4.2438	8.2011	7.5881	11.1515	4.1328	8.6031	7.6457	11.2419
+1	2.5118	2.6124	3.5549	4.9888	2.2740	2.3913	3.4417	4.6551
Nonparametric (rank) t-test Statistics								
	Market Adjusted Model				***Market Model***			
Date	*Small*	*Middle*	*Large*	*Overall*	*Small*	*Middle*	*Large*	*Overall*
-1	0.1130	0.6029	2.4676	1.4181	0.1103	0.7566	2.5353	1.5055
0	3.6867	5.2322	4.9137	6.4229	3.7220	5.6029	5.0061	6.6120
+1	2.5673	2.1100	1.9140	3.1843	2.4668	2.0746	1.7936	3.0479

Notes: 1. Date 0: event date, the date of the announcement.
2. Date -1: alternative event date, the announcement may occur one day in advance of that on record.
3. Date +1: alternative event date, the announcement may occur one day later than that on record.
4. If the *t*-test statistic is larger in absolute value than 1.96 or 2.58, the relevant abnormal return is statistically non-zero at the 5% or 1% significance level, respectively.

(c). Parametric t-test Statistics on the Cumulative Abnormal Returns (CARs) in Intervals around the Event Date

	Market Adjusted Model				***Market Model***			
Intervals	*Small*	*Middle*	*Large*	*Overall*	*Small*	*Middle*	*Large*	*Overall*
11 Days Around Event Day								
-5 to -1	-1.4067	1.9119	3.4125	1.9760	-1.9232	1.3198	3.2822	1.2961
+1 to +5	-0.9485	-2.3942	-0.3895	-1.9916	-1.2704	-3.0690	-0.9265	-2.7627
-5 to +5	-0.3083	2.1476	4.3260	3.3518	-0.9071	1.4147	3.8934	2.4008
21 Days Around Event Days								
-10 to -1	-1.3658	1.2493	3.3036	1.6252	-2.1507	0.0035	2.9316	0.3488
+1 to +10	-0.3766	-3.1730	-1.5166	-2.6429	-0.9155	-4.0619	-2.3189	-3.7716
-10 to +10	-0.2763	0.4621	2.8891	1.7312	-1.2140	-0.9232	2.0912	0.0913
41 Days Around Event Day								
-20 to -1	-3.4292	0.0159	3.4401	-0.2468	-4.5884	-1.6749	2.5501	-2.2490
+1 to +20	-0.8458	-1.3200	-0.5803	-1.5266	-1.7201	-2.5687	-1.6255	-3.1693
-20 to +20	-2.3230	0.3700	3.1824	0.5030	-3.7607	-1.6203	1.8399	-2.0286

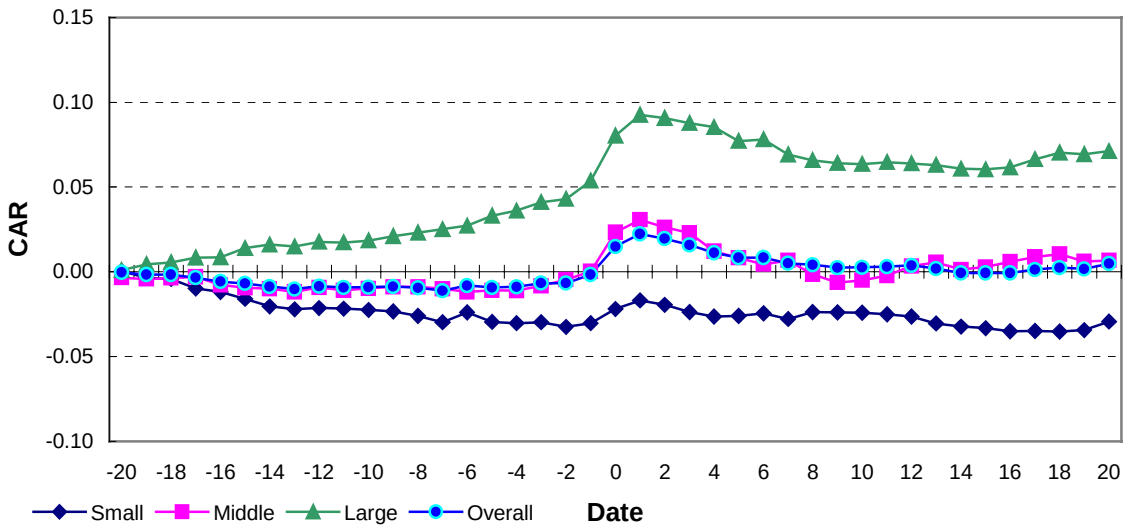
Notice: If the *t*-test statistic is larger in absolute value than 1.96 or 2.58, the relevant CARs of the intervals are statistically non-zero at the 5% or 1% significance level, respectively.

Having compared Table-2, Panel (a) with Table-1, Panel (a), and Figure-2 with Figure-1, we find that the CARs related to the small-bonus approvals are above those relating to the small-bonus proposals, whereas, the CARs related to the large-bonus approvals is below those relating to the large-bonus proposals. The narrow range of CARs between portfolios of bonus approvals shows that the influence of bonus approvals is weaker than that of bonus proposals. Since the main informational content of bonus approvals has already been disclosed in the announcement of bonus proposals, the bonus approvals convey less information than the

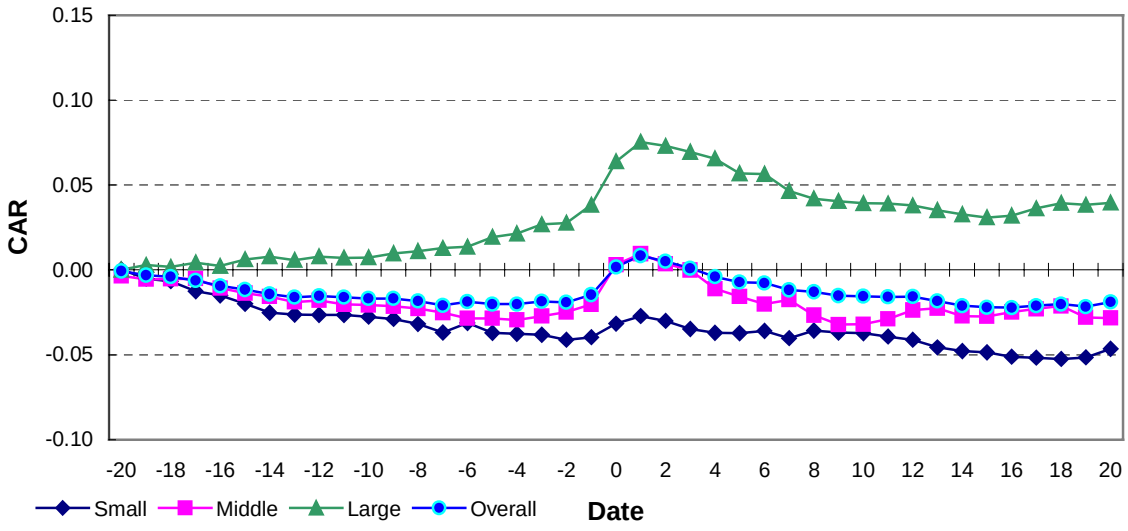
bonus proposals do. This finding is consistent with the studies of cash dividend proposals and approvals.

Figure-2. Cumulative Abnormal Returns (CARs) for Bonus Approvals of A-shares in China's Stock Market

(1). Market Adjusted Model Cumulative Abnormal Returns (CARs)



(2). Market Model Cumulative Abnormal Returns (CARs)



The *t*-values of the parametric and non-parametric tests on the event dates in Table-2, Panel (b) are all positive and large. In particular, the *t*-values that occurred at the event date 0 across every portfolio are dramatically larger than +2.58. Meanwhile, the majority of *t*-values

at the alternative event dates -1 and +1 are still above +1.96 or +2.58. This is evidence that announcement of bonus approvals generates significantly positive returns at the event dates. However, those significantly positive returns occurring at the event dates are accompanied with significant negative returns in the intervals before or after the event dates.

Table-2, Panel (c) reports *t*-tests on the CARs in intervals around the announcement of bonus approvals. The *t*-values for the interval of dates –20 to –1 before the event date for the small-bonus portfolio are below -1.96, which suggests that investors are pessimistic in their anticipation of the small-bonus approvals. The *t*-values for the intervals of dates +1 to +5 and +1 to +10 after the event date for the middle-bonus portfolio are below -1.95 or -2.58, which indicates that investment in the middle-bonus stocks gains significantly negative returns after the announcement date of the approvals. ??? For the large-bonus portfolio, the *t*-values for each interval before the event date are above +2.58 or +1.96, but for the intervals of dates –10 to –1 after event date in the market model section they are below -1.96. ??? This evidence suggests that the optimistic anticipation of the large-bonus approvals are corrected after the announcement of such approvals.

ii. Assessment of Market Efficiency for A-shares on the Announcement of Bonus Approvals

The *t*-values show that the stock prices reflect the announcement of bonus approvals in a statistically significant and positive manner at the event date. However, this cannot be simply labeled an efficient phenomenon. Firstly, the small-bonus approval should not be good news and should not engender the reaction of a large positive return. The significant positive returns at the event date, accompanied with significant negative returns in the intervals before and after the event date, show that the stock prices respond to the small-bonus approvals in the wrong direction at the announcement date. However, since the negative returns are statistically insignificant after the announcement date, we place the reaction of A-shares prices to the announcement of small-bonus approvals in the efficient category.

Next, the additional informational content of a bonus approval over and beyond that of the bonus proposal is not that great, since the informational content of the approval is similar to that of the proposal, which has been disclosed previously. Therefore, the reaction of stock prices to the bonus approvals should be weaker than their reaction to the bonus proposals. This is true during the 41 day investigation period, but not at the announcement date. The

unusually large positive *t*-values at the event date and negative *t*-values for the intervals after the event date show that the middle-bonus stocks have a severe overreaction at the event date. However, for the large-bonus stocks, the overreaction at the event date is relatively smaller. Only in the market model section is a *t*-value significant in the interval of dates +1 to +10 after the announcement at the 5% significance level. As a consequence, we conclude that the reaction of A-shares prices to the middle-bonus approvals is inefficient and the reaction to the large-bonus approvals are ambiguous.

d. Tests on the Announcement of Bonus Approvals for B-shares

The records of bonus proposals of B-shares are of an insufficient number for statistical analysis. Thus, event study tests are only conducted on the 56 bonus approvals of B-shares. Among the 56 bonus approvals of B-shares, thirty-four of them fall into the small-bonus portfolio and 22 fall into the middle/large-bonus portfolio with a bonus ratio larger than 2 for 10.

Table-3 summarizes the results of the tests on the announcement of bonus approvals of B-shares. Table-3, Panel (a) and Figure-3, Panels (1) and (2) illustrate the CARs as measured by the market-adjusted and the market models. From that table and those figures it is evident that the B-shares investors have a similar assessment to that of the A-shares investors on the information of bonus approvals. They prefer investing in the middle/large-bonus stocks to investing in the small bonus stocks. As a result, the CARs of middle/large-bonus B-shares are mainly positive and above the zero return axis, while the CARs of small-bonus B-shares are negative and below the zero return axis.

A comparison of Figure-3, Figure-1 and Figure-2 reveals that the difference in the CAR lines between the small-bonus and middle/large-bonus stocks for the B-shares bonus approvals is more similar to the difference between the small-bonus and large-bonus stocks for the A-shares bonus approvals than for the A-shares proposals. Therefore, while we did not test the bonus proposals for the B-shares due to the small portfolio size, we may hypothesize that the B-shares investors may respond to the announcement of bonus approvals more weakly than they respond to the announcement of bonus proposals. However, the CAR lines of the B-shares in Figure-3 are more volatile due to the small portfolio problem.

Table-3, Panel (b) shows that all parametric and non-parametric *t*-values tested on the announcement of small-bonus approvals for B-shares are less than 1.96 in absolute value, which suggests that the small-bonus B-shares prices have not been significantly affected by

the announcement at the event date. On the other hand, the *t*-values at the event date 0 for the middle/large-bonus B-shares are larger than +1.96, which implies that the middle-large-bonus B-shares react significantly and positively to the announcement at the event date at the 5% significance level.

Table-3. Results of the Tests on the Announcement of Bonus Approvals for B-shares in China's Stock Market

(a). Cumulative Abnormal Returns (CARs)

	Market Adjusted Model			***Market Model***		
Date	*Small*	*Middle-Large*	*Overall*	*Small*	*Middle-Large*	*Overall*
-20	-0.0020	0.0097	0.0023	-0.0044	0.0079	-0.0003
-18	-0.0202	0.0114	-0.0085	-0.0342	0.0061	-0.0208
-16	-0.0153	0.0154	-0.0039	-0.0305	0.0062	-0.0183
-14	-0.0224	0.0248	-0.0049	-0.0315	0.0124	-0.0169
-12	-0.0294	0.0224	-0.0102	-0.0423	0.0078	-0.0256
-10	-0.0142	0.0109	-0.0049	-0.0252	-0.0091	-0.0199
-8	-0.0208	-0.0032	-0.0143	-0.0326	-0.0249	-0.0301
-6	-0.0232	0.0031	-0.0135	-0.0282	-0.0133	-0.0233
-4	-0.0305	0.0197	-0.0120	-0.0377	0.0076	-0.0226
-3	-0.0408	0.0191	-0.0186	-0.0482	0.0065	-0.0299
-2	-0.0422	0.0307	-0.0152	-0.0510	0.0170	-0.0283
-1	-0.0407	0.0413	-0.0104	-0.0500	0.0254	-0.0249
0	-0.0420	0.0575	-0.0052	-0.0527	0.0411	-0.0214
+1	-0.0469	0.0627	-0.0064	-0.0578	0.0461	-0.0231
+2	-0.0380	0.0599	-0.0018	-0.0479	0.0416	-0.0181
+3	-0.0381	0.0496	-0.0057	-0.0492	0.0318	-0.0222
+4	-0.0322	0.0604	0.0020	-0.0444	0.0424	-0.0155
+6	-0.0181	0.0661	0.0130	-0.0306	0.0510	-0.0034
+8	-0.0255	0.0593	0.0058	-0.0430	0.0467	-0.0131
+10	-0.0319	0.0740	0.0072	-0.0502	0.0629	-0.0125
+12	-0.0313	0.0874	0.0126	-0.0478	0.0730	-0.0075
+14	-0.0424	0.0679	-0.0016	-0.0610	0.0495	-0.0242
+16	-0.0359	0.0747	0.0050	-0.0537	0.0540	-0.0178
+18	-0.0497	0.0638	-0.0077	-0.0676	0.0393	-0.0320
+20	-0.0418	0.0642	-0.0026	-0.0643	0.0387	-0.0299

Notes: 1. Small: the sample of 34 approvals with bonus ratios less than or equal to 2 for 10.
2. Middle-large: the sample of 22 approvals with bonus ratios larger than 2 for 10.
3. Overall: the sample of all 66 bonus approvals, including the small and middle-large samples.
4. Date 0: the date of the announcement.
5. Date -1 to -20: the dates before the announcement.
6. Date +1 to +20: the dates after the announcement.

(b). Parametric and Nonparametric t-test Statistics on the Abnormal Returns for the Specific Event Date

Parametric t-test Statistics						
	Market Adjusted Model			***Market Model***		
Date	*Small*	*Middle-Large*	*Overall*	*Small*	*Middle-Large*	*Overall*
-1	0.2202	1.6344	0.9882	0.1449	1.3209	0.7068
0	-0.2010	2.5062	1.0509	-0.4023	2.4854	0.7213
+1	-0.7221	0.8013	-0.2311	-0.7842	0.7993	-0.3585
Nonparametric (rank) t-test Statistics						
	Market Adjusted Model			***Market Model***		
Date	*Small*	*Middle-Large*	*Overall*	*Small*	*Middle-Large*	*Overall*
-1	0.1245	0.6340	0.5004	-0.1931	0.7671	0.3038
0	0.2373	2.5081	1.7842	0.2167	2.4231	1.6238
+1	-0.3891	0.2331	-0.1489	-0.4925	0.2211	-0.2633

Notes: 1. Date 0: event date, the date of the announcement.
2. Date -1: alternative event date, the announcement may occur one day in advance of that on record.
3. Date +1: alternative event date, the announcement may occur one day later than that on record.
4. If the *t*-test statistic is larger in absolute value than 1.96 or 2.58, the relevant abnormal return is statistically non-zero at the 5% or 1% significance level, respectively.

(c). Parametric t-test Statistics on the Cumulative Abnormal Returns (CARs) in Intervals around the Event Date

	Market Adjusted Model			***Market Model***		
Intervals	*Small*	*Middle-Large*	*Overall*	*Small*	*Middle-Large*	*Overall*
11 Days Around Event Day						
-5 to -1	-1.1695	2.6424	0.2825	-1.4911	2.7377	-0.1505
+1 to +5	1.6782	1.5078	2.1832	1.5412	1.5160	2.0510
-5 to +5	0.2823	3.5537	1.9792	-0.0875	3.6172	1.4988
21 Days Around Event Days						
-10 to -1	-0.7894	0.8538	-0.2634	-0.8146	0.9255	-0.3309
+1 to +10	0.4804	0.8037	0.8067	0.1179	1.0923	0.5827
-10 to +10	-0.2571	1.6907	0.6042	-0.5686	1.9348	0.3312
41 Days Around Event Day						
-20 to -1	-1.3597	1.4283	-0.4745	-1.7116	0.8970	-1.1521
+1 to +20	0.0087	0.2318	0.1207	-0.3970	-0.0844	-0.3948
-20 to +20	-0.9750	1.5508	-0.0830	-1.5355	0.9557	-0.9678

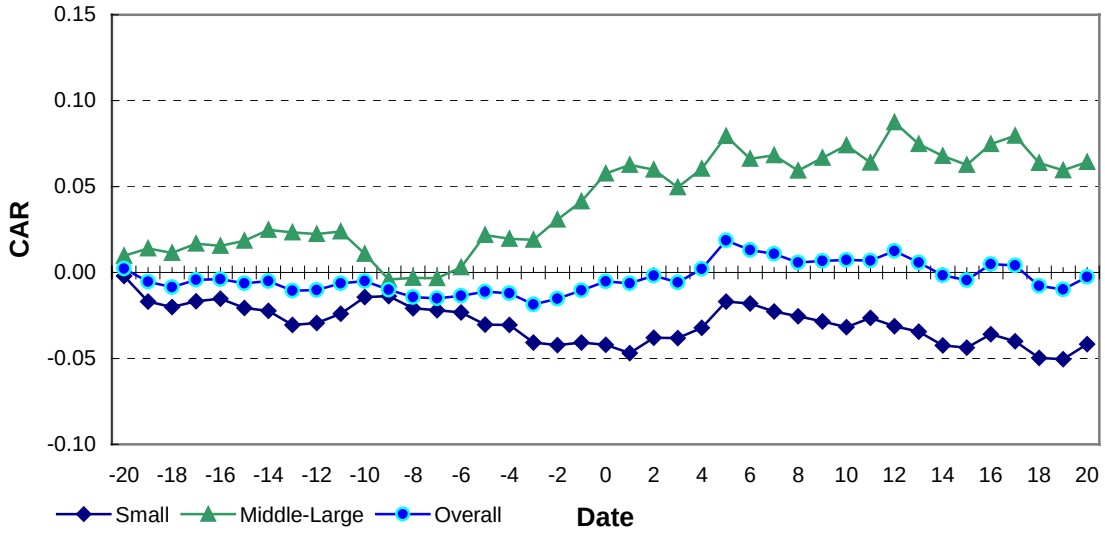
Notice: If the *t*-test statistic is larger in absolute value than 1.96 or 2.58, the relevant CARs of the intervals are statistically non-zero at the 5% or 1% significance level, respectively.

Table-3, Panel (c) shows that the *t*-statistics for the CARs in any intervals are less than 1.96 in absolute value for the small-bonus approved B-shares. Thus, there are no significant variations of returns for the small-bonus approved B-shares at or around the event date. By contrast, the t-statistics tested on the CARs in the interval of dates –5 to –1 before the event date for the middle/large-bonus approved B-shares are larger than +2.58, which shows that significant positive returns are generated in the five days before the event date. Due to the

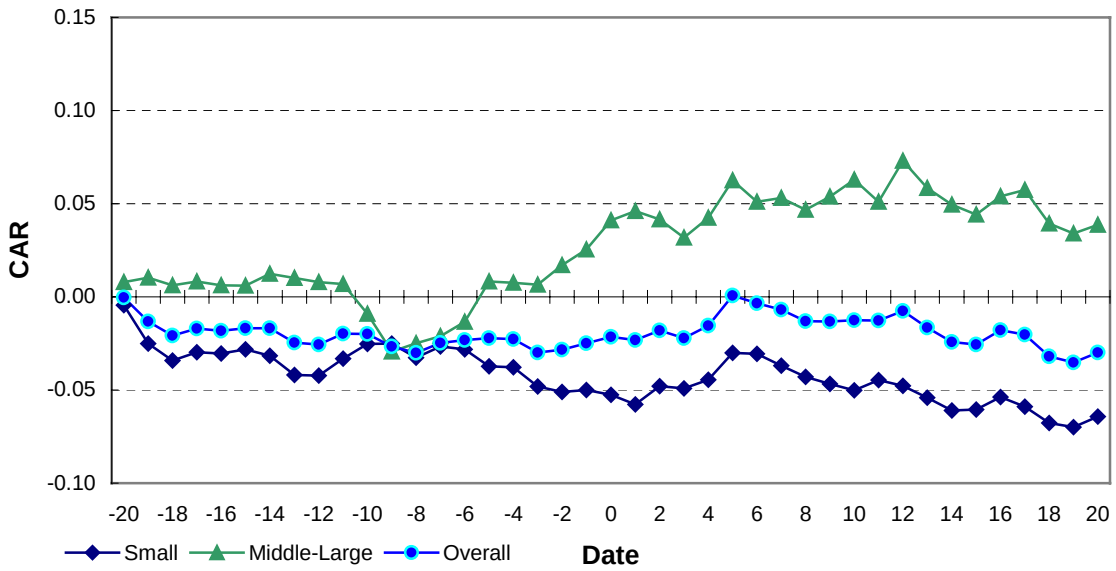
significant positive returns occurring at the event date 0 and in the interval of dates –5 to –1 before the announcement, the CARs of in interval of dates –5 to +5 around the event date for the middle/large-bonus B-shares are significant at the 1% significance level with *t*-statistics above +2.58.

Figure 7-3. Cumulative Abnormal Returns (CARs) for Bonus Approvals of B-shares in China's Stock Market

(1). Market Adjusted Model Cumulative Abnormal Returns (CARs)



(2). Market Model Cumulative Abnormal Returns (CARs)



For the small-bonus B-shares, we fail to find evidence of over- or under-reaction, or the application of inside information. Thus, even though the price reaction to the announcement of small-bonus approvals at the event date is statistically insignificant, we cannot conclude that the small-bonus B-shares prices are not efficient with respect to the announcement. Similarly, for the middle/large-bonus B-shares, we again fail to find evidence of over- and under-reaction. If we assume that the significant cumulative abnormal returns of the 5 days before the event date resulted from reasonable anticipation, then we should conclude that the middle/large-bonus approved B-shares prices reflect the announcement efficiently.

e. Conclusion

The *event study* methodology was employed to investigate the stock price behaviour in response to the bonus issues and then to determine whether or not semi-strong form efficiency holds for the new emerging stock markets of China. Empirical studies were conducted on the abnormal returns triggered by the announcements of bonus issues' proposals and approvals for the A-shares and approvals for the B-shares respectively. In total, eleven portfolios were constructed according to the size of the bonus ratio for each issue. A parametric test was performed on the abnormal returns not only on the event dates but also on the intervals before, after and surrounding the event date. A non-parametric test was also employed to test abnormal returns on the event dates.

Empirical results show that the direction and magnitude of the stock price reaction to the announcement of bonus issues depend upon the specified bonus schemes. The A-shares prices usually react to the announcement of middle-bonus and large-bonus proposals with significantly positive returns, particularly with significantly positive CARs in the investigation period. In contrast, the A-shares prices react to the announcement of small-bonus proposals with negative and significant returns. However, when the bonus approvals are announced, except for the significant positive returns on the event date, the CARs of the middle-bonus A-shares become negative. On the other hand, the B-shares prices react to the announcement of small-bonus approvals with negative returns and to the announcement of middle/large-bonus approvals with statistically significant and positive returns.

The assessment of semi-strong form efficiency for the new emerging stock markets in China are based mainly on the direction and magnitude of abnormal returns generated in the intervals after the announcement. Thus, the statistics show market efficiency for five

portfolios analyzed and market inefficiency for another five portfolios; one portfolio must be classified as ambiguous. In other words, the stock prices react properly to the announcements for the middle-bonus proposals of A-shares, for the large-bonus proposals of A-shares, for the small-bonus approvals of A-shares, and for the small-bonus and middle-large-bonus approvals of B-shares. This study provides evidence of under-reaction for the small-bonus proposals of A-shares, and the overall bonus approval of B-shares. Overreaction is uncovered in the overall bonus proposals of A-shares and in the overall bonus approvals of B-shares. Therefore, it is perhaps unsound to deem the entire market as semi-strong form efficient.

As for previous studies on the other markets, the assessment here is unable to take account of trading with insider information. Insider trading can manifest itself in the form of significant CARs in the intervals before an announcement date. Although an analysis of strong-form market efficiency is beyond the scope of this paper, we feel it is important to take into consideration this point before jumping to the conclusion the CSMs are semi-strong form efficient.

References

Ball, R., P. Brown and F. J. Finn, 1977, "Share Capitalisation Changes, Information, and the Australian Equity Market," *Australian Journal of Management*, 2, 105-125.

Bernard, V. L. and J. K. Thomas, 1990, "Evidence That Stock Prices Do Not Fully Reflect the Implications of Current Earnings for Future Earnings," *Journal of Accounting and Economics*, 13, 305-340.

*Brown, P., 1970, "The Impact of the Annual Net Profit Reports and Market," *Australian Accountant*, 60, 227-83.

Brown, P., 1972, "The Half-yearly Reports," Society Bulletin No.13, *Australian Society of Accountants*, Melbourne.

Brown, P., F. J. Finn and P. Hancock, 1977, "Dividend Changes, Earning Reports, and Shares Prices: Some Australian Findings," *Australian Journal of Management*, 2, 127-147.

Brown, S. and J. Warner, 1980, "Measuring Security Price Performance," *Journal of Financial Economics*, 8, 205-258.

Brown, S. and J. Warner, 1985, "Using Daily Stock Returns, the Case of Event Studies," *Journal of Financial Economics*, 14, 3-31.

Corrado, C., 1989, "A Non-parametric Test for Abnormal Security Price Performance in Event Studies," *Journal of Financial Economics*, 23, 385-395.

Corrdo, C. and T. Zivney, 1992, “The Specification and Power of the Sign Test in Event Study Hypothesis Tests Using Daily Stock Returns,” *Journal of Financial and Quantitative Analysis*, 27(3), 465-478.

Dollry, J., 1933, “Characteristics and Procedure of Common Stock Split-Ups,” *Harvard Business Review*, 316-326.

Fama, E. F., 1970, “Efficient Capital Markets: A Review of Theory and Empirical Work,” *Journal of Finance*, 25(2), 283-417.

Fama, E. F., 1976, *Foundation of Finance*, Basic Books, New York.

Fama, E. F., L. Fisher, M. Jensen and R. Roll, 1969, “The Adjustment of Stock Prices to New Information,” *International Economic Review*, 10, 1-21.

*Foster, G., C. Olsen and T. Shevlin, 1984, “Earning Release, Anomalies, and the Behaviour of Security Returns,” *The Accounting Review*, 52, 1-21.

Frankfurter, G. M. and H. Schneider, 1995, “Some Further Examination of the Event Study Method of Analysis,” *Research in Finance*, 13, 275-253.

Masulis, R., 1980, “The Effects of Capital Structure Change on Security Prices: A Study of Exchange Offers,” *Journal of Financial Economics*, 8, 139-177.

Miller, M. and F. Modigliani, 1961, “Dividend Policy, Growth and the Valuation of Shares,” *Journal of Business*, 34(4), 411-433.

Peterson, R., 1971, “Bonus Issues, Share Issues, Share Splits and Rights Issues,” *The Chartered Secretary*, July/August, 198-207.

Rendleman, R. J., Jr., C. P. Jones and H. A. Latane, 1987, “Further Insight into the Standardised Unexpected Earning Anomaly: Size and Serial Correlation Effects,” *The Financial Review*, 22, 131-144.

Scholes, M. and J. Williams, 1977, “Estimating Betas from Nonsynchronous Data,” *Journal of Financial Economics*, 5, 309-328.

Scholes, M. S., 1972, “The Market for Securities: Substitution versus Price Pressure and the Effects of Information on Share Prices,” *Journal of Business*, 45(1), 179-211.

Sloan, R. G., 1987, “Bonus Issues, Share Splits and Ex-day Share Price Behaviour: Australian Evidence,” *Australian Journal of Management*, 12, 277-291.

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