

Financial Anomalies: Examination of Chinese B-share Markets from 1993 -2006

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Introduction

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Efficient Market:

- **Weak-form**
- **Semi-strong form**
- **Strong form**

- **Who believe Efficient Market?**

Financial anomalies are possibly the best-known examples of inefficiencies in the financial markets.

Introduction

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- The establishment of the Chinese stock exchanges:
Shanghai in December 1990 and Shenzhen in April 1991;
The market value : 1990 -US\$ 0.8 billion
1993 -US\$ 5.2 billion
2010- US\$2.95 trillion (3rd in the world)
175 IPOs in 2010 -raising a total US\$49.22 billion.
A-share is traded in CNY (Chinese Yuan) for domestic investors.
B-share : Before 2001 -only for foreign investors
After February 2001 - for foreigners and domestic investors
SHB –USD
SZB- HKD
- Due to rapid increasing in the demands of international capital and overseas portfolios, and the growth of Chinese economy it is necessary to have a empirical study in the Chinese B-stock market.
- Chinese economy gets cold, we will get flu (Rogers, 2010)

. Literature Review

- ❑ Mookerjee and Yu (1999) - no evidence of a January effect or early January effect existing in the Chinese stock markets.
- ❑ Mitchell and Ong (2006) - some evidence of a February turn-of-the-year effect. (IMF paper)
- ❑ Su, Dutta and Xu (2011) -significant March effect existing in both Shanghai and Shenzhen A-share markets by using either adjusted value-weighted or adjusted equal-weighted data from 1994 to 2006.
- ❑ Gao and Kling (2005) - highest return in February, but it is insignificant as well.
- ❑ Zhang, Sun and Hua (2003) - neither January effect nor a February Chinese New Year effect on the Chinese stock market.

Objective

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- examining Chinese B-share markets in both Shanghai and Shenzhen stock exchange to find whether there is January effect, February effect or March effect by using value-weighted indices and equal-weighted portfolio indices.

Data Selection

- ❑ Lakonishok and Smidt (1988), Schwert (1990), and Haug and Hirschey (2006) - the evidence of January effect is stronger by using equal-weighted data than value-weighted data.
- ❑ Su, Dutta & Xu(2011) - most researchers have examined the seasonal anomalies in the Chinese market by using value-weighted indices and there is no evidence of January effect or Chinese New Year effect.
- ❑ This study : the value-weighted indices and the equal-weighted portfolio data to examine financial anomalies in the Chinese B-stock market.
- ❑ Furthermore, the companies that listed on each market are classified into five tiers based on size to determine the size effect.
- ❑ The monthly share price has been collected from 1994 to 2006 for each stock, and it is used for monthly seasonality analysis. The market value has been collected from 1993 to 2005 for each stock, and it is used to determine size classes for the listed companies.
- ❑ The monthly data is sourced from the Datastream database.

Data Selection cont.

- Some abnormal returns which may lead to erroneous conclusions. In order to isolate any such effect it is necessary to establish criteria to analyse stock returns. We assume all the monthly returns are random and the returns on each class follow a normal distribution. Therefore 95 percent of returns fall into two standard deviations away from the mean and it is believed that the return in the 95 percent range is normal in a market. The mean and standard deviation for each group size is calculated.

Research Method

The monthly returns are calculated as:

$$R_{it} = \ln \left(\frac{P_{it}}{P_{i,t-1}} \right)$$

The market values are calculated as:

$$MV_{it} = P_{it} \times S_{it}$$

The equal-weighted portfolio returns are calculated as:

Model:
$$I_{jt} = \frac{\sum_{i=1}^N R_{it}}{N}$$

$$I_{jt} = \hat{\alpha} + \sum_{i=1}^N \beta_i d_{it} + \varepsilon_{it}$$

Findings

Testing results by using unadjusted value-weighted data

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Month	SHB				SZB			
	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
Constant	-7.58%	0.086*	6.53%	0.192	-3.53%	0.446	5.21%	0.377
Feb.	12.30%	0.049*	-3.91%	0.578	4.16%	0.525	-2.27%	0.785
Mar.	6.76%	0.292	1.93%	0.774	4.54%	0.502	10.22%	0.202
Apr.	8.64%	0.18	-8.21%	0.225	3.54%	0.601	-5.10%	0.522
May.	18.42%	0.005*	-4.75%	0.481	12.22%	0.074*	-4.63%	0.561
Jun.	6.29%	0.327	-11.27%	0.097*	6.68%	0.325	-7.64%	0.338
Jul.	4.43%	0.489	-12.21%	0.073*	-0.32%	0.963	-9.13%	0.253
Aug.	10.21%	0.114	-7.27%	0.281	2.96%	0.661	-6.79%	0.394
Sep.	6.75%	0.293	-4.65%	0.49	3.54%	0.601	-4.79%	0.547
Oct.	3.71%	0.562	-9.95%	0.142	-0.39%	0.954	-7.05%	0.377
Nov.	2.94%	0.646	-4.85%	0.471	6.06%	0.372	-1.39%	0.861
Dec.	10.68%	0.098*	-7.37%	0.275	0.86%	0.899	-5.28%	0.508

Note:

1 * Significant level at 10%

2, constant represents January

3, the results show that there is no January effect in SHB and SZB by using unadjusted value-weighted data.

Findings

Testing results by using unadjusted value-weighted data cont.

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Estimated coefficients by unadjusted data – MARCH, 2001-2006

Month	SHB		SZB	
	Coeff.	P-value	Coeff.	P-value
Constant	8.46%	0.066	15.43%	0.005
Jan.	-1.93%	0.774	-10.22%	0.202
Feb.	-5.84%	0.386	-12.49%	0.12
Apr.	-10.14%	0.117	-15.32%	0.047*
May.	-6.68%	0.299	-14.86%	0.054*
Jun.	-13.20%	0.043*	-17.87%	0.021*
Jul.	-14.14%	0.031*	-19.36%	0.013*
Aug.	-9.20%	0.154	-17.02%	0.028*
Sep.	-6.58%	0.306	-15.01%	0.051*
Oct.	-11.88%	0.068*	-17.28%	0.026*
Nov.	-6.78%	0.292	-11.61%	0.129
Dec.	-9.30%	0.15	-15.50%	0.045*

- Note: 1, * Significant level at 10%
- 2, constant represents March
- 3, the results by using unadjusted equal-weighted data after Feb. 2001 show that the highest return is March for SHB but it is insignificant. SZB shows a March effect as March has the highest return and significantly higher than most months.

Findings

Testing results by using adjusted value-weighted data

Estimated coefficients by adjusted data – MARCH, 2001-2006 Adjusted data

Month	SHB		SZB	
	Coeff.	P-value	Coeff.	P-value
Constant	0.82%	0.819	2.72%	0.518
Jan.	-0.98%	0.854	2.48%	0.676
Feb.	1.80%	0.722	0.22%	0.970
Apr.	-2.50%	0.606	-2.61%	0.646
May.	-3.59%	0.480	-2.15%	0.706
Jun.	-5.56%	0.254	-5.16%	0.36
Jul.	-2.93%	0.564	-6.65%	0.246
Aug.	-1.57%	0.747	-4.31%	0.450
Sep.	1.06%	0.827	-2.31%	0.686
Oct.	-4.24%	0.383	-6.02%	0.314
Nov.	0.86%	0.859	-0.27%	0.963
Dec.	-1.66%	0.732	-5.46%	0.361

- 1, * Significant level at 10%
- 2, constant represents March
- 3, the results show that there is no March effect in SHB and SZB by using adjusted equal-weighted data after Feb, 2001.

Findings

Testing results by using unadjusted equal-weighted data

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Estimated coefficients by unadjusted data – JANUARY, 2001-2006 on SZB Unadjusted data for SZB (After February 2001)

Month	1		2		3		4		5	
	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
Constant	1.62%	0.836	0.62%	0.933	3.42%	0.599	3.67%	0.55	5.55%	0.34
Feb.	4.01%	0.717	3.76%	0.719	-2.28%	0.805	-0.27%	0.975	-1.59%	0.85
Mar.	13.44%	0.207	11.51%	0.254	9.01%	0.309	11.45%	0.171	9.00%	0.25
Apr.	-7.23%	0.495	-3.26%	0.745	-4.26%	0.629	-2.38%	0.775	-5.83%	0.46
May.	3.43%	0.746	2.98%	0.767	-2.59%	0.769	-3.31%	0.69	-4.65%	0.55
Jun.	-4.55%	0.668	-3.63%	0.717	-5.66%	0.521	-5.83%	0.484	-10.95%	0.16
Jul.	-10.71%	0.313	-11.12%	0.27	-10.97%	0.217	-8.49%	0.308	-9.81%	0.21
Aug.	-1.92%	0.856	-1.64%	0.87	-4.93%	0.576	-5.12%	0.538	-7.86%	0.32
Sep.	2.31%	0.827	5.12%	0.61	0.30%	0.973	-2.92%	0.725	-5.16%	0.51
Oct.	-8.16%	0.442	-5.17%	0.607	-7.22%	0.414	-6.09%	0.464	-9.36%	0.23
Nov.	-0.62%	0.953	0.61%	0.951	-1.17%	0.894	-0.83%	0.92	-0.71%	0.93
Dec.	-5.63%	0.596	-5.98%	0.551	-6.25%	0.479	-2.64%	0.751	-4.83%	0.54

Findings

Testing results by using adjusted equal-weighted data



Estimated coefficients by adjusted data – FEBRUARY, 1994-2001 on SHB Adjusted data for SHB (Before 2001)

Month	1		2		3		4		5	
	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
Constant	1.29%	0.698	0.03%	0.994	5.18%	0.181	3.56%	0.376	3.63%	0.306
Jan.	-8.80%	0.063	1.43%	0.780	-10.00%	0.079	-7.90%	0.182	-11.34%	0.026
Mar.	1.21%	0.803	-1.90%	0.720	-5.22%	0.356	-4.00%	0.497	-2.87%	0.595
Apr.	-3.84%	0.430	-4.14%	0.437	-5.93%	0.295	-4.23%	0.472	-6.32%	0.244
May.	-5.43%	0.311	-3.30%	0.573	-6.21%	0.319	-1.90%	0.769	0.96%	0.858
Jun.	-4.95%	0.329	-2.92%	0.599	-6.67%	0.259	-9.66%	0.118	-7.93%	0.145
Jul.	-3.74%	0.441	7.52%	0.160	-11.65%	0.042	-6.21%	0.313	-5.62%	0.299
Aug.	7.57%	0.122	-4.33%	0.416	-5.55%	0.326	-1.03%	0.861	-2.14%	0.679
Sep.	-1.05%	0.828	-3.31%	0.534	-6.05%	0.285	-3.18%	0.588	-6.09%	0.241
Oct.	-5.55%	0.255	-2.87%	0.589	-9.04%	0.112	-9.57%	0.107	-6.32%	0.224
Nov.	-3.23%	0.506	-0.59%	0.911	-10.70%	0.061	-8.20%	0.166	-11.27%	0.032
Dec.	-2.81%	0.599	-4.68%	0.425	-1.06%	0.851	-3.51%	0.568	-2.25%	0.664

Note: 1, * Significant level at 10%

2, size 1 represents the smallest capitalization stocks and size 5 represents the largest capitalization stocks.

3, constant represents February.

4, the results show that there is no February effect in SZB (before Feb, 2001) by using adjusted equal-weighted data.

Findings

AUT

Testing results by using adjusted equal-weighted data cont.

Estimated coefficients by adjusted data – FEBRUARY, 2001-2006 on SHB Adjusted data for SHB (After 2001)

	1		2		3		4		5	
Month	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
Constant	4.60%	0.239	1.07%	0.776	3.47%	0.299	2.18%	0.567	1.56%	0.632
Jan.	-7.32%	0.211	-4.31%	0.448	-4.24%	0.421	-1.09%	0.849	-0.93%	0.849
Mar.	-6.49%	0.239	-3.08%	0.564	-6.28%	0.206	-2.44%	0.650	-1.54%	0.739
Apr.	-9.60%	0.072*	-2.27%	0.657	-3.29%	0.485	-7.38%	0.173	-2.81%	0.525
May.	-5.59%	0.310	-2.30%	0.667	-4.65%	0.347	-0.10%	0.985	-3.90%	0.400
Jun.	-7.42%	0.161	-5.27%	0.304	-7.65%	0.108	-7.23%	0.164	-8.32%	0.064
Jul.	-8.67%	0.118	-5.50%	0.305	-7.06%	0.156	-5.11%	0.344	-2.76%	0.551
Aug.	-6.37%	0.228	-2.83%	0.580	-3.24%	0.491	-2.95%	0.567	-2.59%	0.559
Sep.	-4.74%	0.389	-2.57%	0.631	-4.28%	0.387	0.50%	0.923	-0.36%	0.935
Oct.	-11.39%	0.034*	-5.70%	0.268	-8.83%	0.064	-6.55%	0.207	-4.09%	0.358
Nov.	-4.59%	0.383	0.20%	0.969	-2.31%	0.623	-0.06%	0.991	-0.29%	0.947
Dec.	-10.03%	0.060*	-4.33%	0.399	-3.66%	0.437	-4.94%	0.340	-1.81%	0.682

Note: 1, * Significant level at 10%

2, size 1 represents the smallest capitalization stocks and size 5 represents the largest capitalization stocks.

3, constant represents February.

4, the results show that the highest return is February but it is insignificant by using adjusted equal-weighted data (after Feb, 2001).

Findings

AUT

Testing results by using adjusted equal-weighted data cont.

Estimated coefficients by adjusted data – FEBRUARY, 1994-2001 on SZB Adjusted data for SZB (Before 2001)

	1		2		3		4		5	
Month	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
Constant	-0.33%	0.935	3.06%	0.496	-2.17%	0.575	0.88%	0.793	-1.10%	0.744
Jan.	-2.16%	0.703	-6.64%	0.283	0.31%	0.954	-3.83%	0.419	-3.40%	0.478
Mar.	4.80%	0.415	2.61%	0.682	5.79%	0.307	1.32%	0.787	1.48%	0.765
Apr.	-3.35%	0.569	-0.13%	0.984	0.42%	0.941	-2.19%	0.655	1.41%	0.776
May.	3.72%	0.527	2.94%	0.643	11.54%	0.044*	6.31%	0.200	1.80%	0.728
Jun.	0.20%	0.973	-4.65%	0.483	-2.31%	0.696	-0.39%	0.939	0.39%	0.940
Jul.	-4.36%	0.459	-9.51%	0.137	-3.59%	0.543	-5.18%	0.313	-3.53%	0.495
Aug.	-1.82%	0.757	-9.68%	0.131	0.11%	0.985	-3.68%	0.454	-0.61%	0.902
Sep.	0.14%	0.981	-0.87%	0.891	3.10%	0.583	-2.57%	0.600	1.11%	0.822
Oct.	0.23%	0.968	-7.05%	0.269	-1.37%	0.809	-4.15%	0.397	-2.94%	0.552
Nov.	-5.72%	0.351	-8.91%	0.181	-4.32%	0.465	-8.08%	0.117	-7.01%	0.177
Dec.	-2.57%	0.662	-5.84%	0.360	-1.85%	0.744	1.43%	0.780	-0.86%	0.863

1, * Significant level at 10%

2, size 1 represents the smallest capitalization stocks and size 5 represents the largest capitalization stocks.

3, constant represents February.

4, the results show that there is no February effect in SZB (before Feb, 2001) by using adjusted equal-weighted data.

Findings

AUT

Testing results by using adjusted equal-weighted data cont.

Estimated coefficients by adjusted data – FEBRUARY, 2001-2006 on SZB (After 2001)

Month	1		2		3		4		5	
	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
Constant	5.62%	0.185	4.39%	0.292	1.15%	0.784	3.40%	0.357	3.96%	0.296
Jan.	5.20%	0.411	-2.56%	0.705	2.28%	0.701	0.27%	0.959	1.59%	0.765
Mar.	-8.87%	0.140	-7.69%	0.193	-3.35%	0.572	-2.71%	0.603	-2.38%	0.656
Apr.	-11.24%	0.052*	-7.02%	0.214	-1.99%	0.726	-2.11%	0.672	-4.24%	0.408
May.	-0.57%	0.920	-0.79%	0.888	-0.32%	0.955	-3.04%	0.542	-3.06%	0.550
Jun.	-8.55%	0.137	-7.40%	0.191	-3.39%	0.551	-5.56%	0.267	-9.36%	0.071*
Jul.	-14.72%	0.012*	-10.41%	0.080	-3.23%	0.586	-3.03%	0.560	-3.96%	0.459
Aug.	-5.93%	0.300	-5.40%	0.337	-2.66%	0.640	-4.85%	0.332	-6.27%	0.223
Sep.	-7.51%	0.209	-4.86%	0.409	2.58%	0.650	-2.65%	0.594	-3.57%	0.486
Oct.	-12.17%	0.036*	-8.93%	0.116	-4.94%	0.385	-5.82%	0.245	-7.77%	0.132
Nov.	-4.63%	0.417	-3.15%	0.575	1.11%	0.846	-0.56%	0.910	0.88%	0.863
Dec.	-9.63%	0.095*	-9.75%	0.087*	-3.97%	0.485	-2.37%	0.634	-3.24%	0.527

- Note:
- 1, * Significant level at 10%
 - 2, size 1 represents the smallest capitalization stocks and size 5 represents the largest capitalization stocks.
 - 3, constant represents February.
 - 4, the results show that there is no February effect in SZB (after Feb, 2001) by using adjusted equal-weighted data.

Findings

AUT

Testing results by using adjusted equal-weighted data cont.

Estimated coefficients by adjusted data – JANUARY, 2001-2006 on SZB Adjusted data for SZB (After 2001)

	1		2		3		4		5	
Month	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value	Coeff.	P-value
Constant	10.82%	0.024	1.82%	0.733	3.42%	0.415	3.67%	0.321	5.55%	0.145
Feb.	-5.20%	0.411	2.56%	0.705	-2.28%	0.701	-0.27%	0.959	-1.59%	0.765
Mar.	-14.06%	0.029*	-5.13%	0.450	-5.63%	0.344	-2.97%	0.568	-3.97%	0.458
Apr.	-16.44%	0.009*	-4.46%	0.497	-4.26%	0.454	-2.38%	0.633	-5.83%	0.256
May.	-5.77%	0.343	1.78%	0.786	-2.59%	0.648	-3.31%	0.507	-4.65%	0.365
Jun.	-13.75%	0.027*	-4.83%	0.462	-5.66%	0.320	-5.83%	0.245	-10.95%	0.036*
Jul.	-19.92%	0.002*	-7.84%	0.249	-5.51%	0.354	-3.30%	0.526	-5.55%	0.300
Aug.	-11.12%	0.071*	-2.84%	0.665	-4.93%	0.386	-5.12%	0.306	-7.86%	0.128
Sep.	-12.71%	0.048*	-2.29%	0.735	0.30%	0.957	-2.92%	0.558	-5.16%	0.315
Oct.	-17.37%	0.006*	-6.37%	0.333	-7.22%	0.207	-6.09%	0.224	-9.36%	0.071*
Nov.	-9.83%	0.109	-0.59%	0.929	-1.17%	0.837	-0.83%	0.868	-0.71%	0.890
Dec.	-14.83%	0.017*	-7.18%	0.275	-6.25%	0.273	-2.64%	0.596	-4.83%	0.346

Note 1, * Significant level at 10%

2, size 1 represents the smallest capitalization stocks and size 5 represents the largest capitalization stocks.

3, constant represents January.

4, the results show that there is a January effect in SZB (after Feb, 2001) by using adjusted equal-weighted data. But it is only appearing on the smallest capitalization stocks.

Conclusion

- No January effect in the Chinese B-share market.
- March effect is found after February 2001 in both SHB and SZB by unadjusted data; which can be explained by liquidity of funds (we don't accept it).
- A size effect in Shenzhen B-share market – the smallest-size group shows a significant January effect in the period from 2001 to 2006 when adjusted equal-weighted data was used.
- No February effect either before or after February 2001 in both B-share markets.

Academic contribution & Empirical contribution

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Thank You

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Questions?