

The “Turn of the Month” effect in Hong Kong and China

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Abstract

The turn of the month effect is the tendency for stocks to increase in price during the last few days and the first few days of each month. In this report, I investigate the existence of the effect in Hong Kong and China using historical data for the stock indices HSI, HSCEI, SHASHR, SZASHR, and SHSZ300. I find that the turn of month effect exists in the period Days (-3, +2) for the HSI, Days -1 and +1 for the HSCEI, and Days (-1, +3) for the Chinese indices.

1 Introduction

The turn of the month effect was first documented in economic literature in 1988 by Lakonishok and Smidt, who found that from 1897 to 1986 in the U.S., the four days at the turn of the month—the last trading day of the previous month and the first three trading days of the current month—accounted for all of the positive return to the DJIA. Literature has also shown that this effect is present not only in the United States but also in many other countries around the world.

Ziemba (1991) studied the turn of the month effect in Japan with security price returns in the Tokyo stock market, and found significant returns in the period of Days -5 to +2¹. In addition, Kunkel, Compton, and Beyer (2003) examines stock market indices for 19 countries for the turn of the month effect from 1988-2000, and found that the turn of month effect existed in 16 out of the 19 countries they examined. They were unable to find a significant turn of month in Brazil, Hong Kong, and Malaysia. Most recently, McConnell and Xu (2008) also examined daily returns in 35 different countries, and found that the effect occurred in 31 of the 35 countries examined, including Hong Kong. However, in-depth studies regarding the turn of the month effect in Hong Kong and China have not yet been done. This report contributes to current literature by examining the turn of month effect in Hong Kong and Chinese stock markets in greater depth than before with current data up to July 2015.

2 Data and Methodology

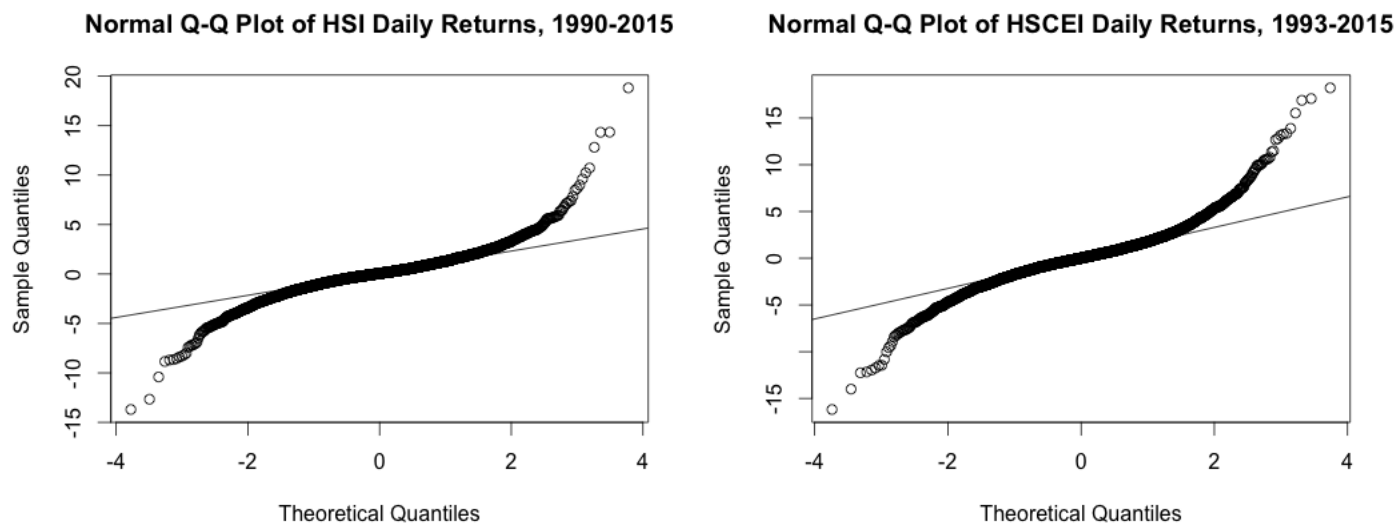
To investigate the existence of the turn of month effect in Hong Kong and China, I use all of the available historical price data from the Bloomberg terminal for daily gross returns (%) of two large Hong Kong stock indices and three large Chinese stock indices. For Hong Kong, I use the Hang Seng Index (HSI; January 1990 to July 2015), and the Hang Seng China Enterprise Index (HSCEI; July 1993 to July 2015). For China, I use the Shanghai Stock Exchange A Share Index (SHASHR; January 1992 to July 2015), the Shenzhen Stock Exchange A Share Index (SZASHR; October 1992 to July 2015), and the Shanghai Shenzhen CSI 300 (SHSZ300; January 2002 to July 2015).

The HSI tracks 48 of the largest companies in Hong Kong that make up about 60% of capitalization of securities listed on the Stock Exchange of Hong Kong, and its constituents have a total market capitalization of HK\$12.2 trillion. The HSCEI consists of H-shares, or shares of a company from the Chinese mainland and regulated by Chinese law but traded in Hong Kong dollars, listed on the Hong Kong Stock Exchange.

¹Day -5 is used to denote the fifth to last day of the previous trading month, and Day +2 is used to denote the second trading day of the month.

The Shanghai and Shenzhen A Share Indexes track the daily performance of all A-shares, or shares traded in RMB restricted to local investors and qualified institutional foreign investors, listed on the Shanghai and Shenzhen stock exchanges. The SHSZ300 consists of 300 large market capitalization A-share stocks listed on the Shanghai or Shenzhen Stock exchanges.

Similar to the procedure conducted in McConnell and Xu (2008), I also use a one-sided t-test to test if returns during each individual turn of month day and the period as a whole are significantly greater than zero and greater than non-turn of month days. However, daily returns for each index is not normally distributed: according to the normal probability plot of HSI and HSCEI daily returns shown below, the distribution of percent daily returns is heavy-tailed, so the normality assumption of the t-test may be violated. To account for this, I also check the results of a nonparametric test that does not rely on the normality assumption. I chose to use a two-sample Wilcoxon rank sum (Mann-Whitney) test to test the difference between turn-of-month and non turn-of-month days, and a one-sample Wilcoxon signed rank test for the other tests in addition to the one-sample and two-sample t-tests used in McConnell and Xu (2008). In addition to checking the significance of the mean daily return, I also check to see if the percent of positive returns the days in question are significantly greater than zero.

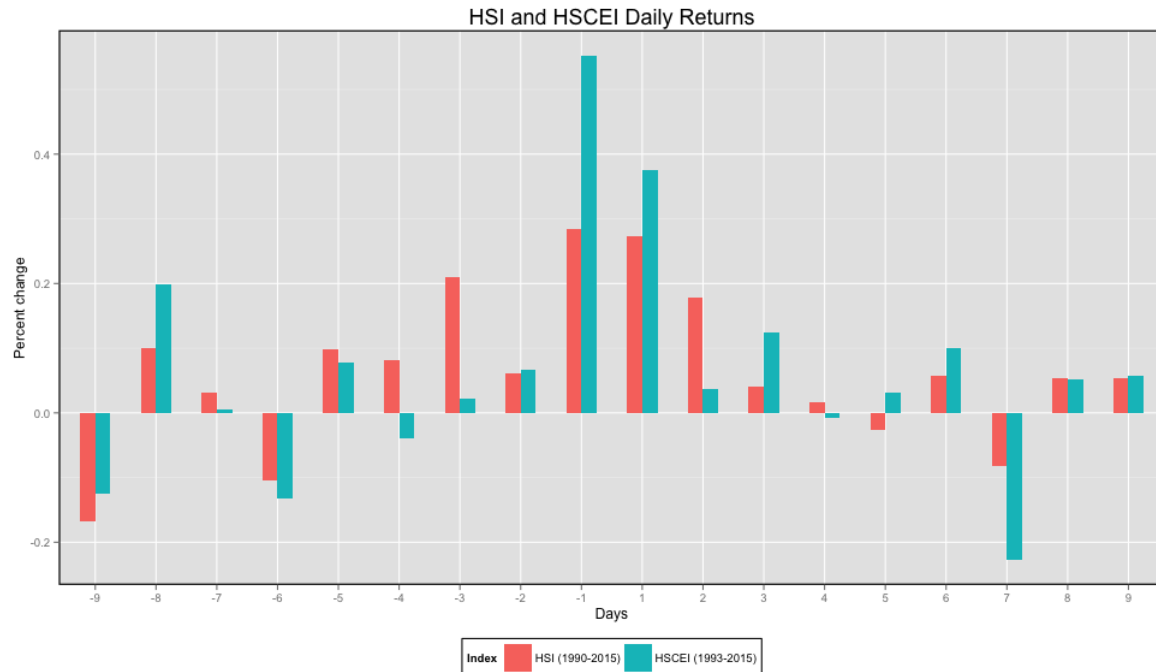


3 Analysis

3.1 Hong Kong Stock Exchange

The graph below shows average daily returns in the days surrounding the turn of the month in the HSI from 1990-2015, and in the HSCEI from 1993-2015. Day -1 is used to refer to the last trading day of the previous month, and Day +1 is used to refer to the first trading day of the month. Although the HSI contains 67% of the constituents of the HSCEI index² as measured by market capitalization, their returns around the turn of the month are slightly different. In the HSI, returns from the period of Days -5 to +2 seem to be larger than average; however, in the HSCEI, the effect seems to exist in Days -2 to +3. This discrepancy is explored further in later sections.

²<http://www.morningstarthailand.com/th/news/articles/106344/meet-the-indices—hang-seng-china.aspx>



Tables 1 and 2 provide a quick statistical analysis of the significance of historical returns in the HSI and HSCEI. The period Days (-5, +2) refers to returns over the period between Days -5 and +2. The tables test if the historical returns for the turn of month days in the HSI and HSCEI are significantly greater than zero, and if the percent that these returns are positive for each day is significantly greater than zero. Based on the graph above, I define the turn of the month as Day -5 to Day 2 for the HSI and as Day -2 to Day +3 for the HSCEI.

According to Table 1, although all of the daily returns in the turn of month period are positive, both the t-test and the Wilcoxon test suggest that Days -5, -4, and -2 are not significantly greater than zero while returns for Days -3, -1, +1, and +2 are. Nevertheless, the returns during the turn of the month period are very significantly greater than both zero and the non-turn of month days. The non-turn of month days are not significantly greater than zero. In addition, the percent of positive returns for Days -1, 1, and 2 are significantly greater than 50%, but returns for other days aren't. Again, positive returns for turn of month days are greater than 50% while returns for other days are not. Because Days -5 and -4 do not display any significant results, and exactly half of returns on Day -4 in the HSI from 1990-2014 were positive, they can arguably be removed from the turn of month period. The data suggests that the turn of month effect for the HSI occurs in the period (-3, +2).

Table 2 investigates the HSCEI and finds that according to both the t-test and the Wilcoxon test, only returns for Days -1 and +1 are significantly greater than zero. This suggests that the turn of month effect is less pronounced in the HSCEI than the HSI, or that the sample size was not large enough to distinguish a significant turn of month effect. Percent of positive returns for Days -1 and +1 were also significantly above 50%. For turn of month days as a whole, returns were significantly positive and percent of positive returns were above 50%. The data indicates that a turn of month effect does exist in Hong Kong, but to a lesser extent than the U.S., and the turn of month period is Days (-3, +2) for the HSI and Days (-1, +1) for HSCEI. Returns for the other days are also positive, but not significant.

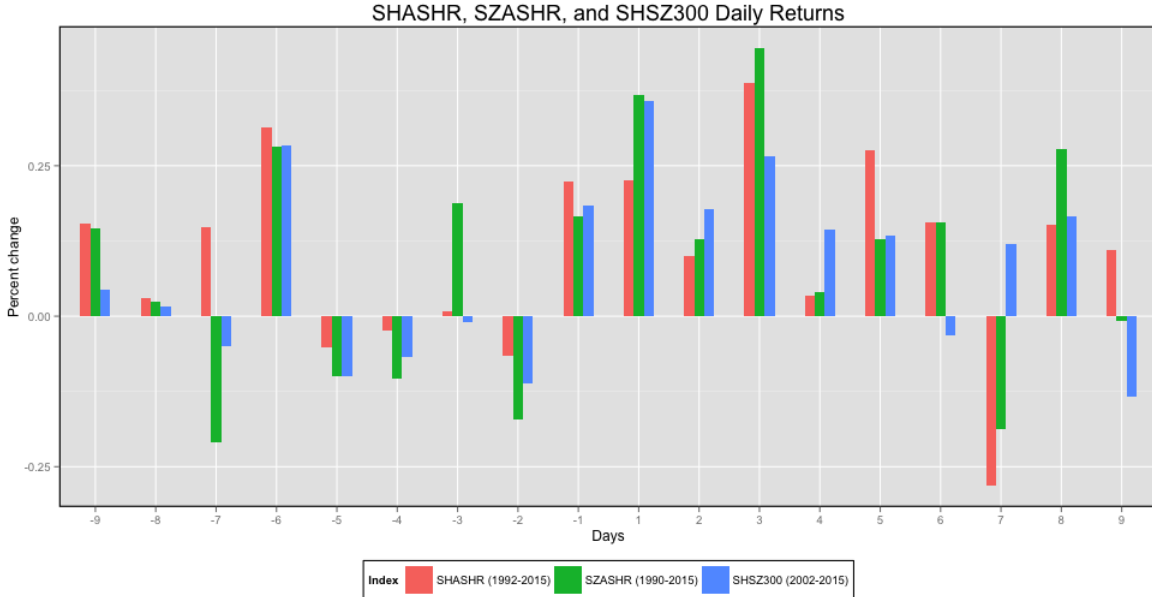
Table 1: Hang Seng Index (HSI): Daily Returns for Days -5 to +2

Jan. 1990 - Jul. 2015	Day -5	Day -4	Day -3	Day -2	Day -1	Day +1	Day +2	Days (-5, +2)	Others	Difference
Mean daily return (%)	.0991	.0820	.2097	.0615	.2849	.2725	.1773	.1695	.0022	.1674
<i>t</i> -statistic	1.06	.85	2.21	.67	3.57	2.58	2.07	4.79	.088	3.94
<i>t</i> -test p-value	.146	.20	.014	.25	.0002	.005	.020	$9e^{-7}$	.46	$4e^{-5}$
Wilcoxon p-value	.121	.327	.023	.295	$4e^{-5}$	.0005	.007	$5e^{-8}$	.12	$9e^{-5}$
Positive (%)	52.9	50	54.2	50.7	59.1	59.6	60.2	55.2	50.7	
<i>t</i> -test p-value	.166	.50	.076	.432	.0008	.0005	.0002	$7e^{-7}$	.161	

Table 2: Hang Seng China Enterprise (SHASHR): Daily Returns for Days -2 to +3

Jul. 1993 - Jul. 2015	Day -2	Day -1	Day +1	Day +2	Day +3	Days (-2,+3)	Others	Difference
Mean daily return (%)	.0662	.5527	.3745	.0371	.1242	.2301	-.0014	.2323
<i>t</i> -statistic	.45	5.10	2.34	.26	.83	3.64	-.04	3.25
<i>t</i> -test p-value	.328	$3e^{-7}$	.010	.397	.204	.00014	.515	.0006
Wilcoxon p-value	.268	$1e^{-6}$	.011	.390	.290	$5e^{-5}$	.852	$3e^{-5}$
Positive (%)	49.6	59.4	58.0	53.8	54.1	55.0	48.9	
<i>t</i> -test p-value	.525	.0013	.0058	.1211	.098	.0004	.915	

3.2 Chinese Stock Exchange



The graph above plots daily returns from the Days -9 to +9 of the Shanghai Stock Exchange A Share Index (SHASHR) from 1992 to 2015, the Shenzhen Stock Exchange A Share Index from 1990 to 2015, and the Shanghai Shenzhen CSI 300 (SHSZ300) from 2002 to 2015. They all seem to exhibit a turn of the month effect starting from Day -1. SHASHR and SZASHR exhibit positive average daily returns from Days -1 to +6, and the SHSZ300 shows positive returns over Days -1 to +5. Below, I check if these returns are significant.

Tables 3, 4, and 5 examine the SHASHR, SZASHR, and SHSZ300. Table 3 finds that for the SHASHR, the Wilcoxon test shows that returns for Days -1 to +3 are significantly above zero at the .05 significance level (although the *t*-test for Days +1 and +2 do not show significance). In addition, Day +5 is significant, but Days +4 and +6 are not. The percent of returns that are positive for Days -1 through +3 are significantly greater than 50%, but Days +4 through +6 are not. Returns for turn of month days as a whole are very significantly greater than zero and greater than the returns for non-turn of month days, and percent of positive returns for turn of month days is greater than 50%. This suggests that the effect exists in Days (-1, +3).

Table 4 finds that returns for Days -1 through +3 are significantly greater than zero for the Wilcoxon test (although the t-test fails at the .05 level for Days -1 and +2), and finds no significant results for Days +4 to +6. Returns for Days -1 through +3 are significantly greater than 50%, but returns for Days -4 to +6 are not. Again, the turn of month days have very significant positive returns, and are very significantly greater than returns for non-turn of month days. Table 4 also suggests that the turn of month period is Days (-1, +3) for SZASHR.

Table 5 reveal similar results: mean daily returns for Days -1 to +3 are significantly above zero (Days -1 and +2 are not significant by the t-test, but are significant by the Wilcoxon test), and the percent of positive returns are significantly above 50%. Results for Days +4 and +5 are not significant. The turn of month days are very significantly above zero, and percent of positive returns are significantly above 50%, while returns for other days are not significantly different than zero. The three Chinese stock indices behave very similarly around the turn of the month, exhibiting a turn of month effect in the period of Days (-1, +3).

Table 3: **Shanghai Stock Exchange A Share Index (SHASHR): Daily Returns for Days -1 to +6**

<i>Jan. 1992 - Jul. 2015</i>	Day -1	Day +1	Day +2	Day +3	Day +4	Day +5	Day +6	Days (-1, +6)	Others	Difference
Mean daily return (%)	.2239	.2263	.0999	.3881	.0336	.2760	.1553	.1833	.02315	.1601
<i>t</i> -statistic	1.79	1.18	.7983	2.48	.27	2.1	1.12	2.12	.4813	1.62
<i>t</i> -test p-value	.0369	.1186	.2127	.0068	.394	.02	.133	.017	.315	.0532
Wilcoxon p-value	.01	.045	.044	.013	.43	.004	.163	.0005	.629	.0007
Positive (%)	57.4	58.5	55.8	57.6	48.8	59.0	53.0	57.2	50.5	
<i>t</i> -test p-value	.007	.003	.006	.001	.5	.029	.17	.00001	.2731	

Table 4: **Shenzhen Stock Exchange A Share Index (SZASHR): Daily Returns for Days -1 to +6**

<i>Oct. 1992 - Jul. 2015</i>	Day -1	Day +1	Day +2	Day +3	Day +4	Day +5	Day +6	Days (-1, +6)	Others	Difference
Mean daily return (%)	.1667	.3667	.1289	.4456	.0404	.1289	.1559	.2047	-.01	.2147
<i>t</i> -statistic	1.34	1.87	1.14	3.03	.344	1.01	1.29	2.57	-.278	2.47
<i>t</i> -test p-value	.09	.03	.13	.001	.366	.157	.10	.005	.61	.007
Wilcoxon p-value	.012	.009	.022	.0016	.358	.084	.074	$6e^{-5}$	.267	.0005
Positive (%)	58.2	57.5	55.3	56.8	51.3	50.9	53.1	54.7	51.9	
<i>t</i> -test p-value	.004	.008	.045	.015	.36	.40	.17	$3e^{-4}$	.009	

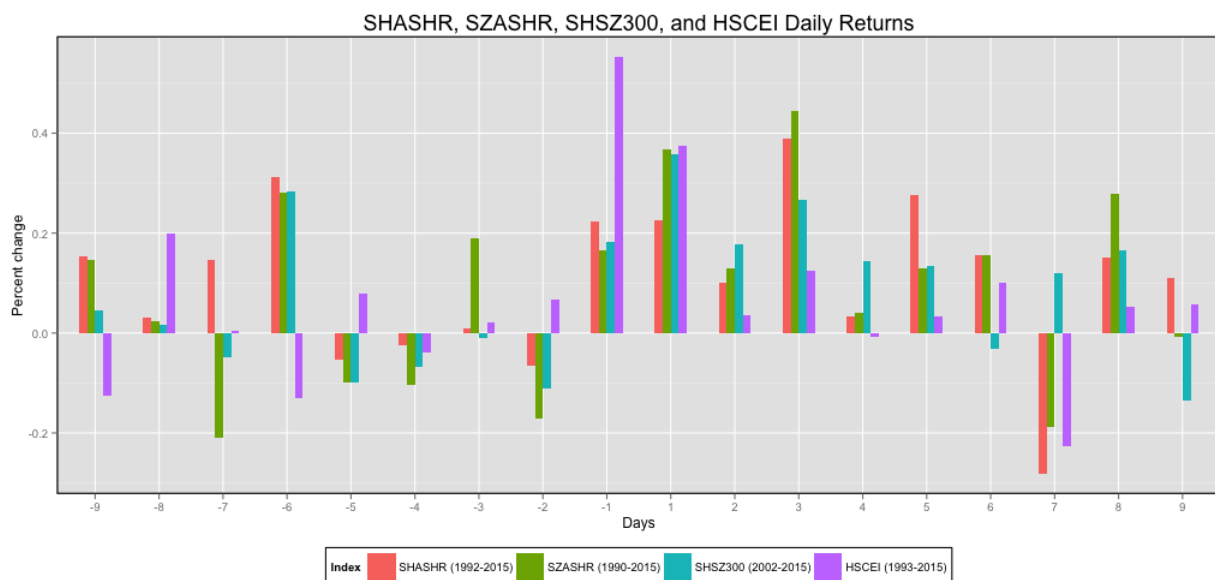
Table 5: **Shanghai Shenzhen CSI 300 Index (SHSZ300): Daily Returns for Days -1 to +5**

<i>Jan. 2002 - Jul. 2015</i>	Day -1	Day +1	Day +2	Day +3	Day +4	Day +5	Days (-1, +5)	Others	Difference
Mean daily return (%)	.1831	.3577	.1787	.2663	.1430	.1338	.2104	-.009	.2194
<i>t</i> -statistic	1.32	2.46	1.29	2.01	1.25	1.07	2.95	-.25	2.79
<i>t</i> -test p-value	.095	.0075	.099	.023	.12	.144	.002	.599	.003
Wilcoxon p-value	.04	.002	.032	.041	.156	.179	.0001	.37	.0004
Positive (%)	54.9	62.3	57.4	53.7	53.1	52.4	55.6	51.6	
<i>t</i> -test p-value	.119	.001	.035	.194	.24	.29	.0002	.061	

3.3 Further Comments and Comparison

From the analyses above, we can conclude that the turn of month exists definitively in China's A Share market in the period Days (-1, +3)—this is seen in all three of the observed indices. However, the effect seems to be less prevalent in Hong Kong. The HSI displayed a turn of month effect in the period Days (-3, +2), earlier than the period observed in the Chinese stock market. The HSCEI presented a different pattern, with only Days -1 and +1 being significantly greater than zero. This may be because the HSCEI consists of Chinese companies traded on the Hong Kong Stock Exchange.

For comparison, the graph below shows returns for the Chinese stock indices along with the HSCEI. The HSCEI seems to display turn of month behavior between that of China and Hong Kong—the HSCEI peaks earlier than the Chinese indices, but later than the HSI, resulting in a lessened turn of month effect. The HSCEI displays lower returns than both Chinese indices and the HSI during the non-overlapping turn of month days, meaning that the HSCEI index displays a smaller turn of month period than the other indices, with significant results limited to Days -1 and +1.



4 Conclusion

The data support the existence of a turn of month effect in both Hong Kong and China. Results of the analysis of the turn of month effect show that the turn of the month effect exists in Hong Kong (HSI) in the period Days (-3, +2) with all days except Day -2 displaying results significantly above zero and all days exhibiting a percent of positive returns significantly greater than 50%. It also exists in China's A shares in the period Days (-1, +3), each day exhibiting significant positive returns and a significant percent of positive returns. However, the HSCEI, which consists of Chinese companies traded in the Hong Kong market, exhibits a pattern combining the two different turn of month periods, with significant results appearing only on Days -1 and +1.

References

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