The February anomaly in China: The Case of Chinese New Year

Abstract

This paper finds that Chinese stocks rise in February instead of January. Further analysis shows that the February premium is attributed to the Chinese New Year. We propose an alternative explanation for this premium based on liquidity preference, i.e., investors prefer holding liquid assets before the holiday and illiquid assets after the holiday. We find a substantial decrease in monetary base and increase in market activity after the Chinese New Year. The empirical fact that the Chinese New Year effect is particularly strong for stocks with low institutional holdings also supports this hypothesis.

Key words: Abnormal returns, February premium, Chinese New Year, Liquidity preference

JEL classification number: C15, C31, G17, G12

1 Introduction

A well-known anomaly in the stock market is the January effect or the turn of the year effect, which finds that the average stock returns are consistently higher at the beginning of the year than during the rest of the year in many countries. For example, from July 1926 to December 2020, stocks listed on the U.S. market provided an average return of 5.24% in January, but only an average of 0.74% for other months. Although some studies argue that this effect has declined [e.g., Gu (2003) and Mehdian and Perry (2002)], Moller and Zilca (2008) show that the January effect persists in the first part of January, but it is offset by lower abnormal returns in the second part of January. Therefore, it is hard to detect the January effect when using monthly data.

This paper re-examines the turn of the year effect using data from China. China's stock market is the second largest in the world after that of the United States. China's market is also becoming more open to international investors. For example, China lifted shareholding limits on foreign ownership of securities in 2020. China's equity market also differs from othe countries' in that individuals in China do not need to pay a capital gains tax[1] and institutional investors play a less important role.[2]

The empirical analysis shows that stocks in China rise in February instead of January. February in China is nothing special except that Chinese New Year (CNY) usually falls in this month. In fact, the average of the equal-weighted market returns during Chinese New Year is 15.98%, whereas the average equal-weighted return during the rest of the year is only 1.97%. The average value-weighted return during CNY also exceeds the average value-weighted return during the rest of the year by a significant amount of 8.96% per month.

We further examine what makes CNY different from other periods. The whole CNY celebration period is composed of three periods: one week of preparation before the new lunar year, one week of official holidays, and one week of continued celebration. We find that the average trading

[1]The State Administration of Taxation has promulgated several regulations specifying no tax on individual gains from selling stocks listed on Shanghai or Shenzhen stock exchanges since 1994. See e.g., http://news.sohu.com/20070228/n248417856.shtml.

[2]According to the Chinese Securities Depository and Clearing Company, individuals held more than 99.7% of total trading accounts as the end of October 2020 and accounted for 80%-85% of the trading volume.

volumes and values before CNY are much lower than the trading volumes and values during the rest of the year and do not rebound until the CNY official holiday is over. In fact, trading volumes and values reach the highest in the first trading week of the new lunar year. Changes in the trading volumes and values before and after the New Year might be directly related to investors' liquidity preference. People prefer holding liquid assets to prepare food, gifts, and travels before the holiday, leading to an inactive stock market during that period. This preference reverses after the official holiday, which drives trading volumes and values to increase when the official holiday is over.

Changes in the monetary base M0, the most liquid and narrowest measure of money supply, confirm the above liquidity hypothesis. On average, M0 increases 16.8% from December to January, much larger than changes in other months and implying a substantial increase in the demand for liquid assets in January. On the contrary, M0 is negative 6.86% in February, the highest degree of decrease among all months, reflecting a decrease in the demand for liquid assets.

Under the assumption of liquidity preference, individual investors might be affected by the holiday more than institutional investors do. Therefore, stocks with low institutional ownership are more likely to be sold before the holiday and bought back after the holiday. The empirical analysis indeed shows that the CNY premium is more pronounced for firms with low institutional ownership. The risk premium remains highly significant after controlling for firm and year fixed effects as well as other commonly used firm characteristics.

This paper contributes to the literature in several ways. First, it conducts a detailed analysis of China's equity markets and finds abnormally high returns around Chinese New Year. China's stock market is becoming larger and more open to international investors. This analysis comes timely considering that China lifted shareholding limits on foreign ownership of securities in 2020.

Second, this paper provides an alternative explanation for the turn of the year effect from the perspective of liquidity preference and supports this hypothesis by market activity and money supply. This finding suggests a way to improve market efficiency, i.e., encouraging market participation from institutional investors and global investors.

Last but not least, this paper shows that the CNY premium is more pronounced for stocks with low institutional ownership, low market capitalization, and low liquidity in the past. These results can help policy makers to improve market efficiency and help investors to explore investment opportunities.

This paper proceeds as follows. Section 2 summaries relevant literature. Section 3 introduces data. Section 4 presents turn of the year effect in the financial markets. Section 5 explores reasons for the Chinese New Year effect. Section 6 concludes.

2 Literature Review

Documentation on the January effect dates back to 1942. Wachtel (1942) came up with the name "the January effect" to describe the abnormally high returns observed in January. Keim (1983) finds that more than 50% of the January premium is realized in the first trading week of the year, especially on the first trading day. Gu (2003) and Mehdian and Perry (2002) document a declining January effect after 1987. However, their conclusions are drawn from monthly returns. Using daily returns, Moller and Zilca (2008) find higher abnormal returns in the first part of January and lower abnormal returns in the second part of January. The two parts offset each other and make the January effect look like disappearing.

Studies of the seasonal anomaly in the Chinese market are documented in Girardin and Liu (2002), Girardin and Zhenya (2005), and Kling and Gao (2005). However, due to limitations on the sample period, these papers fail to detect the February premium. For example, instead of February, Girardin and Liu (2002) and Girardin and Zhenya (2005) find high returns in May and June, respectively. Although Kling and Gao (2005) document highest returns in February, they claim that this pattern flattens out over time. Looking backward, we show that although the February premium weakens around 2005, it reappears in subsequent years.

The most common explanation for the January premium is the tax loss selling hypothesis, i.e., investors sell stocks at a loss to reduce taxable income from gains of other investments in December and buy them back in January, resulting in an increase in stock price in January. See Roll (1983), Schultz (1985), Poterba and Weisbenner (2001), and Chen and Singal (2004). However, Jones, Pearce, and Wilson (1987) and Berges, McConnell, and Schlarbaum (1984) demonstrate that the January effect exists before income taxes are introduced.

Another popular explanation is the window dressing hypothesis, which states that institutional investors sell stocks with large losses to improve the appearance of their funds' performance before presenting to clients or shareholders at the end of the year. See Haugen and Lakonishok (1988) and Lakonishok, Shleifer, Thaler, and Vishny (1991) for example.

Barry and Brown (1984) attribute the January effect to information bias. Keim (1983) and Rozeff and Kinney (1976) also suggest that the increased uncertainty in January due to the impending release of the important accounting information in the previous year depresses stock prices. If the information hypothesis is the reason for the January anomaly, firms with non-December fiscal year-ends should have high returns in a non-January month. However, Reinganum and Gangopadhyay (1991) demonstrate that firms, regardless of their fiscal year-end month, all exhibit large January returns, which contradicts the information hypothesis.

A natural question is why the January effect has persisted for so many years? One reason given in the literature is that the January effect is a compensation for risk. Keim (1983), Reinganum (1983), and Jones, Lee, and Apenbrink (1991) demonstrate that the January premium is stronger for small-cap stocks. Jaffe, Keim, and Westerfield (1989) and Bhardwaj and Brooks (1992) find high returns for stocks with low prices. The January effect is also stronger for stocks underperformed in the past [e.g., De Bondt and Thaler (1985, 1987)]. Rozeff and Kinney (1976) and Rogalski and Tinic (1986) show that volatility and betas are usually higher in January. Although Sun and Tong (2010) do not find clear evidence of unconditional volatility or time-varying volatility higher in January than in other months, they show that risk compensation is higher in January than in other months. Roll (1981) documents that the reason for the January premium to be particularly strong for small-cap stocks is that small-cap stocks are traded less frequently, which makes their risk downward biased and their "risk-adjusted" returns overestimated.

Based on these findings, this paper includes a section to examine whether the CNY premium is also a compensation for risk. We use size, returns in the past, beta, and liquidity as a proxy for risk, and find that the CNY premium is particularly strong for small-cap stocks and illiquid stocks.

3 Data

Based on the ownership, Chinese stocks are classified as A-shares and B-shares. A-shares are traded in the Chinese currency, i.e., Renmingbi (RMB), and were historically available only to domestic investors. Since December 2002, certain selected foreign investors can invest in the A-share market through the Qualified Foreign Institutional Investor (QFII) system. B-shares are traded in foreign currency. The B-share market was originally only available to foreign investors, but has opened to domestic investors since February 2001. This paper focuses on A-shares due to three reasons: (1) stocks listed on the B-share market are traded very infrequently; (2) the B-share market is relatively small compared to the A-share market, with the average trading value only 0.3% of the A-share market trading value; (3) B-share stocks are mainly held by foreign investors, affected by factors outside of China and hard to control. On the other hand, A-shares are becoming more and more influential in the international market. Morgan Stanley Capital International announced it was adding China A-shares to its emerging market index on June 20, 2017.[3] This paper considers the market index and individual stocks listed on the Shanghai and Shenzhen stock exchanges. Their returns are downloaded from the China Stock Market & Accounting Research (CSMAR) database. Risk-less rate is also obtained from CSMAR. The sample extends from January 1997 to December 2020. Although the Shanghai stock exchange started to trade on December 19, 1990 and the Shenzhen stock exchange started to trade on April 3, 1991, the market did not react efficiently until 1997, before which the period is under development (Ma, 2003).

For comparison, this paper also computes equal-weighted and value-weighted returns of stocks listed on New York Stock Exchange, American Stock Exchange and NASDAQ Stock Exchange in excess of monthly risk-less rate from July 1964 to December 2020. Stock returns are obtained

[3]https://www.wsj.com/articles/msci-to-include-china-a-shares-in-indexes-1497992319

from the Center for Research in Security Prices (CRSP) and risk-less rate is approximated by the one-month Treasury bill rate from Ibbotson Associates.

4 Seasonality in market returns

This section starts from analyzing the January anomaly in the U.S. market and then presents seasonal anomaly in China's equity market. Panel (a) in Figure 1 plots the monthly excess equal-weighted market returns of the U.S. in percentage over time. The black points correspond to market returns in January and the red triangles are the average of returns from February to December. January returns in general are above the average returns of other months and this phenomenon persists. However, the abnormally high January returns are only observed in equal-weighted returns. As Panel (b) of Figure 1 shows, value-weighted returns in January are only slightly higher than returns during the rest of the year. Due to this, the literature attributes the abnormally high January returns to small-cap stocks.

The Chinese market behaves differently. Panel (a) in Figure 2 plots the excess equal-weighted market returns of Chinese A-share stocks in January versus the rest of the year. Returns of Chinese stocks do not appear to be higher in January than in other months. Instead, the data imply a strong February effect. As Panel (b) in Figure 2 shows, returns in February, presented in black points, are generally higher than average returns during the rest of the year, which are presented in red points. This phenomenon is particularly remarkable after 2001. In fact, returns in February exceeded the average returns during other months by 5.7% since December 2001. The declined February effect in 2020 may be driven by the COVID-19 pandemic, which will be explained in Section 5.

Table 1 reports the monthly average returns for each calendar month. Columns 2 and 3 report average returns in the U.S. market from January 1964 to December 2020, columns 4 and 5 report average returns of Chinese stocks from January 1997 to December 2020, and columns 6 and 7 report average returns of Chinese stocks from January 2002 to December 2020. The columns labeled "EW" and "VW" report the equal-weighted return and value-weighted return, respectively.

The row labeled "Premium" reports the difference in returns between January and other months for U.S. stocks and the difference in returns between February and other months for Chinese stocks. The row labeled "t-stat" presents the t statistics of these differences. As column 2 shows, the equally weighted return of U.S. stocks is much higher in January than returns during other months. The average difference between returns in January and during the rest of the year is 4.5% and is highly significant. In contrast, value-weighted returns in January are not significantly different from returns during the rest of the year.

Columns 4 and 5 present equal-weighted and value-weighted market returns of Chinese stocks over the period from January 1997 to December 2020. In contrast to the U.S. market, returns in January are lower than many months in China's equity market. Instead, there is a strong February premium and this premium exists for both equal-weighted and value-weighted returns. The equally weighted returns are 4.5% higher in February than during the rest of the year, and the value-weighted returns are 2.4% higher in February. The February premium becomes more pronounced after year 2002. The February premium rises to 5.7% for equally weighted returns and 3% for value-weighted returns. In addition to February, stocks listed in the Chinese market also provide high returns in March, April and May, suggesting a "half-year effect" documented in Mitchell and Ong (2006). The half-year effect is similar to the Halloween effect found in the western countries documented in Bouman and Jacobsen (2002), and Jacobsen and Visaltanachoti (2009), which states that stocks provide higher returns in the winter than in the summer and tend to decline since May.

February in China is nothing special except that Chinese New Year usually falls in this month. As the most important festival in China, the celebration of CNY lasts 23 days, starting on the eighth day prior to the new lunar year and ending on the 15th day of the new lunar year. The official holiday is seven days, from New Year's Eve to the 6th day of the first lunar month, except in the year of 2014, when the Chinese government tried a different holiday schedule. The stock market is closed during the official holiday. Over our sample period, February is included in the Chinese New Year celebration period each year.

The premium during the celebration period of CNY is even higher than the premium in February. Panel (a) in Figure 3 plots the average of the equal-weighted market returns during the CNY celebration period and the rest of the year. The black points, corresponding to returns during CNY, are above the red triangles, which correspond to returns during the rest of the year, almost every year. Returns during the CNY celebration period reduce significantly in 2020, which might be driven by the disruption of the COVID-19 pandemic. A lesser but similar pattern is detected in value-weighted returns, plotted in Panel (b).

Returns demonstrate strong CNY and post-CNY effects. Panel A in Table 2 reports average returns of A-share stocks during the CNY celebration period of the Chinese New Year versus average returns during the rest of the year. Columns 2 and 3 report the equal-weighted and value-weighted returns in the whole period from January 1997 to December 2020. The row labeled "CNY" presents average returns during the celebration period, i.e., between the twenty-third day of the twelfth lunar month and the fifteenth day of the first lunar month in the following year. The row "Rest" presents returns during the rest of the year. Stocks during the CNY celebration period provide an average equally weighted return of 16% and an average value-weighted return of 9.55% in comparison with an equal-weighted return of 1.97% and a value-weighted return of 0.6% during the rest of the year. The CNY premia, i.e., the difference between returns during the CNY celebration period and the rest of year, reported in the row labeled "Premium", are 14% for the equal-weighted return and 9% for the value-weighted return, and are highly significant. As mentioned above, the CNY celebration period contains three periods, 8 days before the new lunar year, 7 days during the official holiday, and 8 days after the official holiday. Stocks are only traded during the first and the third sub-periods. The rows labeled "1st Half" and "2nd Half" in Table 2 report average returns of the market during the first and third periods, respectively. The average of the equally weighted market return in the second half of the CNY celebration period is economically higher than the average market return in the first half, but the difference is not statistically significant. The value-weighted returns during the two periods are very close and non-significant.

Panel C in Table 2 compares returns before and after the CNY celebration period. The row labeled "Pre-CNY" reports the average of returns falling within one month before the start of the CNY celebration. The equal-weighted and value-weighted returns during this period are much lower than returns during the CNY celebration period and are even lower than the average returns during the rest of the year. The row labeled "Post-CNY" reports the average of returns falling within one month after the CNY celebration ends. Although returns falling within one month after the CNY celebration are also lower than returns during the CNY celebration period, returns falling within one month after the CNY celebration are higher than the average returns during the rest of the year as well as returns falling within one month prior to the CNY celebration. There is a significant difference of 5.77% in the equal-weighed returns between one month prior to the CNY celebration and one month after the CNY celebration at 5% level, suggesting a possible post-holiday effect.

Table 2 also reports average market returns after China joined the WTO in columns 4 and 5. The results are consistent with the ones using the full sample.

The first day of the new lunar year falls in February 64% of the time from January 1997 to December 2020 and for the rest 36%, the first day of the new lunar year falls between January 22 and 31. Considering the holiday effect and the post-holiday effect, it is not surprising to observe a February premium.

5 Explanations for the CNY anomaly

5.1 Money supply

One explanation for the abnormally high returns during the CNY celebration period is people's demand of liquid assets. Before the holiday, people prefer holding liquid assets for the needs of the increased consumption during the holiday period, such as preparing food, buying gifts, and traveling; however, this liquidity demand decreases after the holiday, leading to a decrease in the market activity before the holiday and an increase after the holiday. This liquidity preference can be very strong considering that the major stock market participants in China are individual investors.

The reduced CNY effect in 2020 demonstrated in Figure 3 and Table 2 confirms this hypothesis. As the CNY celebration was disrupted by the COVID-19 pandemic,[4] liquidity demand reduced in 2020.

The change in M0, the most liquid money supply that excludes investments, provides support for this hypothesis. Figure 4 plots the average change of M0 over the period from January 1997 to December 2020 by months. The supply of liquid assets and cash increases most in the month of January, drops to the bottom in February and then rebounds, suggesting that people hold more liquid assets before the holiday and less after the holiday.

5.2 Market activity

The substantial changes in market activities before and after CNY also support the liquidity hypothesis. Table 3 lists trading volumes and values around the CNY celebration period. Columns 2 and 3 report trading volumes and values over the time period from January 1997 to December 2020 and columns 4 and 5 report trading volumes and values from January 2002 to December 2020. Panel A reports trading volumes and values during CNY in comparison with the rest of the year. The rows labeled "CNY" and "Rest" show that trading volumes and values are lower during CNY celebration period than during the rest of the year. Although this difference is subtle in the full period, it is more significant in the sub-period, where a stronger CNY premium is observed. Panel B reports trading volumes and values in the two trading weeks during the CNY celebration period. The row labeled "1st Half" corresponds to the trading week before the CNY official holiday and the row labeled "2nd Half" corresponds to the trading week after the CNY holiday. Trading volumes and values increase substantially after people get back to work from the official holiday. The difference between the two is significant for both the full period and the sub-period, but is more significant for the sub-period. In Panel C, rows labeled "Pre-CNY" and "Post-CNY" report trading volumes and values one month before and after the CNY celebration period, respectively.

[4] The pandemic became prevalent before the 2020 spring festival. The government advised people to stay at home and implemented very strict measures to contain the transmission of COVID-19 during that time, such as transport bans, closure of entertainment venue, etc.

Stock market is significantly more active after the CNY celebration period than before the CNY celebration period.

5.3 Holiday effect and institutional ownership

Under the assumption of liquidity preference, stocks with more institutional holdings are more likely to be sold before the holiday and be bought back after the holiday. Therefore, it is likely that the holiday effect is stronger for firms with more institutional investors. To examine this conjecture, we run the following panel regression:

$$R_{it} = \alpha + \eta CNY + \beta Inst_{i,t-1} + \gamma CNY * Inst_{i,t-1} + \delta Z_{i,t-1} + u_i + \lambda_t + \varepsilon_{i,t}$$

where $R_{i,t}$ is the return of firm i in the lunar week t, CNY is a dummy equal to 1 if the lunar week t falls into the CNY celebration period and 0 otherwise, $Inst_{i,t-1}$ is the percent of institutional holdings of firm i in year t, $Z_{i,t-1}$ contains control variables, including size, returns, beta and illiquidity, in the previous period. The regression includes firm and time fixed effects. Standard errors are clustered at the firm level.

As a widely used firm characteristic, size has been found to be a very strong predictor for stock returns. There is usually a negative relationship between firms size and stock returns. Size in this paper is computed as the market capitalization at the end of the previous lunar week.

Two theories are related to past return. On one hand, the disposition effect documents that investors are more reluctant to realize losses than to realize gains. Therefore, there are fewer selling activities of past loser stocks but more selling activities of past winner stocks, leading to a negative relationship between stock returns and its returns in the past. On the other hand, the momentum effect suggests that high or low returns in the past will continue, suggesting a positive relation between stock returns and its performance in the past. Past return is computed as cumulative returns in the previous 12 months before the current lunar week.

Beta is one of the most used risk characteristics. Stocks with high beta covariate strongly with the market and cannot diversify risk. Therefore, such stocks have to provide high returns to attract investors. In this paper, beta is computed using daily returns in the past 12 months provided that there are more than 100 observations.

The Amihud illiquidity ratio (Amihud, 2002) is used to reflect the degree of illiquidity of stocks. The Amihud illiqudity is calculated as follows

$$\text{Illiquidity} = \frac{1}{T}\sum_{t=1}^{T}\frac{|r_t|}{\$V_t},$$

where T is the number of days, r_t is the return on day t, and $\$V_t$ is the dollar volume on day t. A low Amihud ratio implies the stock is liquid.

The CNY celebration consists of two trading periods, one week prior to and one week after the CNY official holiday. To control for within-month patters, we construct intervals corresponding to the trading weeks during CNY celebration period and divide the lunar month into four weeks, split by the 7th, 15th, 23rd of the lunar month, respectively. The trading weeks during the CNY celebration period correspond to the fourth week of the twelfth lunar month and the second week of the first lunar month. In the regressions, we consider two sets of sample, one including the full sample and the other limited to the fourth week and second week of each lunar month to eliminate other potential seasonal effect.

Table 4 presents the regression results. Models 1 and 2 use the full sample; models 3 and 4 limit the sample to the fourth week and second week of each lunar month. In all the regressions, returns during CNY are at least 13% higher than returns during the rest of the year. Firms with low institutional holdings during CNY provide a significant risk premium of at least 4.85%.

In addition to providing a premium throughout the year, small-cap stocks provide additional significant risk premium during the CNY celebration period. Stocks performing poorly in the past provide significantly higher returns throughout the year, but there is no significant difference between the impact of past returns during the CNY celebration period and during the rest of the year. There is no significant relationship between stock returns and beta, even during the CNY celebration period. Illiquid stocks provide significantly higher returns than liquid stocks throughout the year and during the CNY celebration period.

6 Conclusion

This paper re-examines the turn of year effect using data from China. Instead of January, we find abnormally high returns in February. There are no distinct features in February except that the Chinese New Year usually falls in this month. The Chinese New Year effect is even more pronounced than the February premium. Considering that each year, at least part of the CNY celebration period falls into February, it is not surprising to observe an abnormally high returns in February.

Trading volumes and values suggest that market activity reduces substantially before the Chinese New Year. Based on this, we deduce that Chinese New Year changes people's liquidity preference. Before the holiday, people prefer holding liquid assets to prepare for the holiday, but this liquidity pressure releases after the holiday. The narrow measure of money supply M0 confirms this hypothesis: The supply of liquid assets and cash increases substantially in January and decreases in February, reflecting that people switch from illiquid assets to liquid assets in January and from liquid assets to illiquid assets in February. In addition, we find that the CNY effect is more pronounced for firms with low institutional ownership. Considering that individual investors are more likely to be affected by the holiday effect, this finding is consistent with the liquidity preference.

Findings in this paper offer valuable insights to seasonal anomaly and market efficiency. The high premium provided during CNY indicates a certain degree of market inefficiency. Changes in money supply and market activity before and after the holiday suggest that market efficiency can be improved by involving market participants who are less likely to be affected by the holiday, such as institutional investors and global investors.

The results in this paper also provide implications for the traditional explanations of the January effect. Since the fiscal year of most companies in China ends in December, failing to find a January effect in China implies that the information bias hypothesis might not be the reason for the turn of the year effect in other countries. Although the major participants in China's stock market are individuals and they do not pay capital gains taxes, we still find a turn of the lunar year effect. This finding cannot invalidate the tax loss selling or window dressing hypotheses directly, but it implies there could be other reasons for turn of the year effect found in many countries. To test the tax loss selling hypothesis and the window dressing hypothesis, further research can be conducted by using an economy which is little affected by tax loss selling or window dressing, but celebrates the new calendar year.

References

Amihud, Y. (2002). Illiquidity and stock returns: cross-section and time-series effects. *Journal of Financial Markets*, *5*(1), 31–56. doi: https://doi.org/10.1016/S1386-4181(01)00024-6

Barry, C. B., & Brown, S. J. (1984). Differential information and the small firm effect. *Journal of Financial Economics*, *13*(2), 283–294. doi: https://doi.org/10.1016/0304-405X(84)90026-6

Berges, A., McConnell, J., & Schlarbaum, G. G. (1984). The turn-of-the-year in Canada. *The Journal of Finance*, *39*(1), 185–192. doi: https://doi.org/10.1111/j.1540-6261.1984.tb03867.x

Bhardwaj, R. K., & Brooks, L. D. (1992). The January anomaly: Effects of low share price, transaction costs, and bid-ask bias. *The Journal of Finance*, *47*(2), 553–575. doi: https://doi.org/10.2307/2329115

Bouman, S., & Jacobsen, B. (2002). The Halloween indicator," Sell in May and go away": Another puzzle. *The American Economic Review*, *92*(5), 1618–1635. doi: https://www.jstor.org/stable/3083268

Chen, H., & Singal, V. (2004). All things considered, taxes drive the January effect. *Journal of Financial Research*, *27*(3), 351–372. doi: https://doi.org/10.1111/j.1475-6803.2004.00095.x

De Bondt, W. F., & Thaler, R. (1985). Does the stock market overreact? *The Journal of finance*, *40*(3), 793–805.

De Bondt, W. F., & Thaler, R. H. (1987). Further evidence on investor overreaction and stock market seasonality. *The Journal of finance*, *42*(3), 557–581.

Girardin, E., & Liu, Z. (2002). The “Red May” effect in the chinese stock market. *Hamburg Institute for International Economics, HWWA, Hamburg Institute of World Economics, working paper*.

Girardin, E., & Zhenya, L. (2005). Bank credit and seasonal anomalies in China’s stock markets. *China Economic Review*, *16*(4), 465–483. doi: https://doi.org/10.1016/j.chieco.2005.03.001

Gu, A. Y. (2003). The declining january effect: evidences from the us equity markets. *The*

Quarterly Review of Economics and Finance, *43*(2), 395–404.

Haugen, R. A., & Lakonishok, J. (1988). *The incredible January effect: The stock market's unsolved mystery*. Business One Irwin.

Jacobsen, B., & Visaltanachoti, N. (2009). The Halloween effect in US sectors. *Financial Review*, *44*(3), 437–459. doi: https://doi.org/10.1111/j.1540-6288.2009.00224.x

Jaffe, J., Keim, D. B., & Westerfield, R. (1989). Earnings yields, market values, and stock returns. *The Journal of Finance*, *44*(1), 135–148. doi: https://doi.org/10.2307/2328279

Jones, Lee, W., & Apenbrink, R. (1991). New evidence on the January effect before personal income taxes. *The Journal of Finance*, *46*(5), 1909–1924. doi: https://doi.org/10.2307/2328578

Jones, Pearce, D. K., & Wilson, J. W. (1987). Can tax-loss selling explain the January effect? A note. *The Journal of Finance*, *42*(2), 453–461. doi: https://doi.org/10.2307/2328262

Keim, D. B. (1983). Size-related anomalies and stock return seasonality: Further empirical evidence. *Journal of Financial Economics*, *12*(1), 13–32. doi: https://doi.org/10.1016/0304-405X(83)90025-9

Kling, G., & Gao, L. (2005). Calendar effects in Chinese stock market. *Annals of Economics and Finance*, *6*(1), 75–88.

Lakonishok, J., Shleifer, A., Thaler, R., & Vishny, R. (1991). Window dressing by pension fund managers. *The American Economic Review*, *81*(2), 227-231. doi: https://www.jstor.org/stable/2006859

Ma, Q. (2003). *History of the chinese securities (1978-1998)*. CITIC Publishing House.

Mehdian, S., & Perry, M. J. (2002). Anomalies in us equity markets: A re-examination of the january effect. *Applied Financial Economics*, *12*(2), 141–145.

Mitchell, M. J. D., & Ong, M. L. L. (2006). *Seasonalities in China's stock markets: cultural or structural?* International Monetary Fund. doi: 10.5089/9781451862645.001

Moller, N., & Zilca, S. (2008). The evolution of the january effect. *Journal of Banking & Finance*, *32*(3), 447–457.

Poterba, J. M., & Weisbenner, S. J. (2001). Capital gains tax rules, tax-loss trading, and turn-of-the-year returns. *The Journal of Finance*, *56*(1), 353–368. doi: https://www.jstor.org/stable/222472

Reinganum, M. R. (1983). The anomalous stock market behavior of small firms in January: Empirical tests for tax-loss selling effects. *Journal of Financial Economics*, *12*(1), 89–104. doi: https://doi.org/10.1016/0304-405X(83)90029-6

Reinganum, M. R., & Gangopadhyay, P. (1991). On information release and the January effect: Accounting-Information hypothesis. *Review of Quantitative Finance and Accounting*, *1*, 169-176. doi: https://doi.org/10.1086/503659

Rogalski, R. J., & Tinic, S. M. (1986). The January size effect: anomaly or risk mismeasurement? *Financial Analysts Journal*, *42*(6), 63–70. doi: https://www.jstor.org/stable/4478983

Roll, R. (1981). A possible explanation of the small firm effect. *The Journal of Finance*, *36*(4), 879–888. doi: https://doi.org/10.2307/2327553

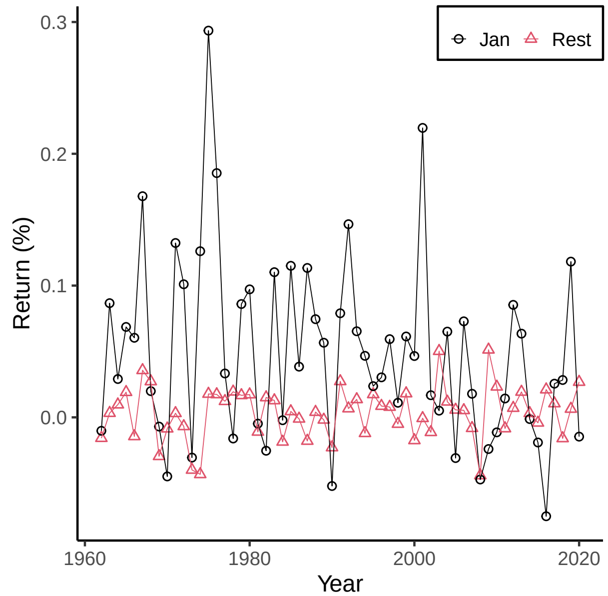
Roll, R. (1983). Vas ist dat: the turn of the year effect and the return premia of small rms. *Journal of Portfolio Management*, *9*, 1828.

Rozeff, M. S., & Kinney, W. R. (1976). Capital market seasonality: The case of stock returns. *Journal of Financial Economics*, *3*(4), 379–402. doi: https://doi.org/10.1016/0304-405X(76)90028-3

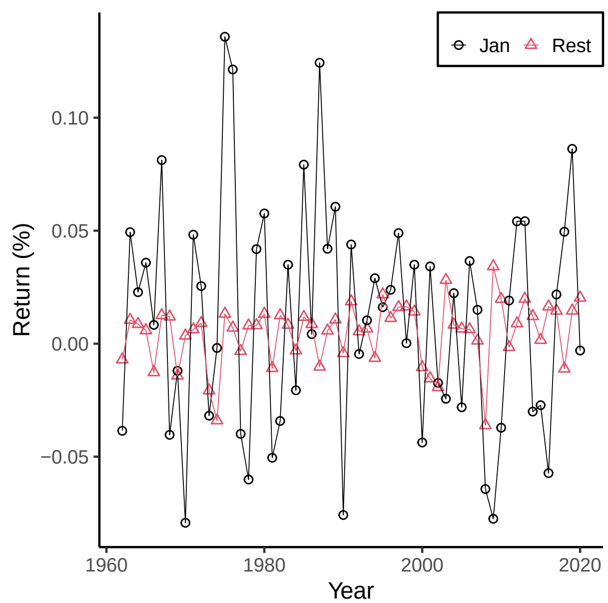
Schultz, P. (1985). Personal income taxes and the January effect: Small firm stock returns before the War Revenue Act of 1917: A note. *The Journal of Finance*, *40*(1), 333–343. doi: https://doi.org/10.2307/2328065

Sun, Q., & Tong, W. H. (2010). Risk and the January effect. *Journal of Banking & Finance*, *34*(5), 965–974. doi: https://doi.org/10.1016/j.jbankfin.2009.10.005

Wachtel, S. B. (1942). Certain observations on seasonal movements in stock prices. *The Journal of Business*, *15*(2), 184–193. doi: https://www.jstor.org/stable/2350013



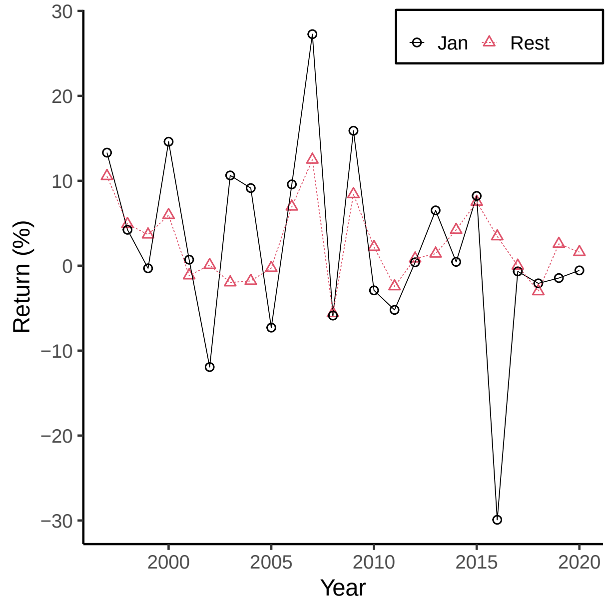
(a) USA equal-weighted returns



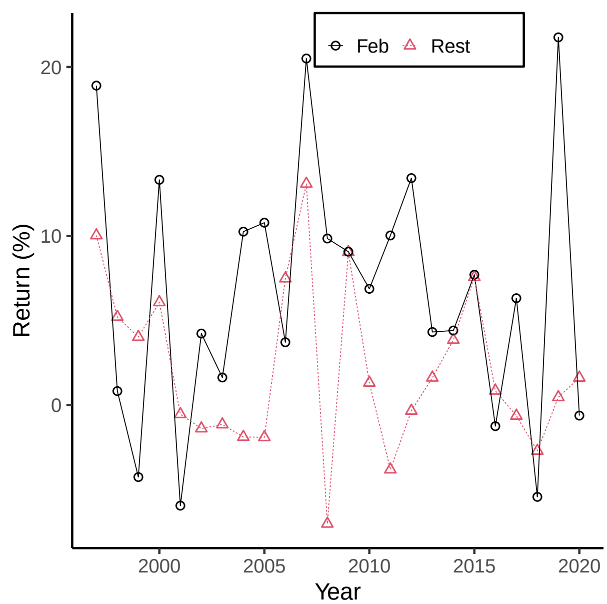
(b) USA value-weighted returns

Figure 1: January effect in USA stocks

This figure plots the equal-weighted and value-weighted market returns of stocks listed on American Stock Exchange, New York Stock Exchange and NASDAQ in excess of one-month risk-less rate. Panel (a) plots the difference in the equal-weighted market returns between January and the average monthly return during the rest of the year across time. Panel (b) plots the difference in the value-weighted market returns between January and the average value-weighted return during the rest of the year. The sample is from January 1964 to December 2020.



(a) Chinese January effect



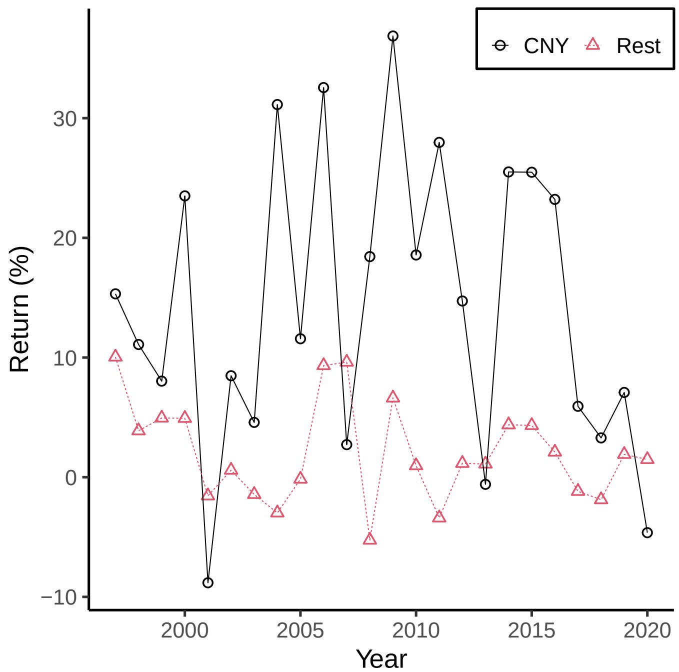
(b) Chinese February effect

Figure 2: Seasonal effect in China
This figure plots market returns of A-share stocks listed on Shanghai and Shenzhen stock exchanges in excess of risk-less rate. Panel (a) plots the difference in the equal-weighted market returns between January and the rest of the year. Panel (b) plots the difference in the equal-weighted market returns between February and other months. The sample period is from January 1997 to December 2020.

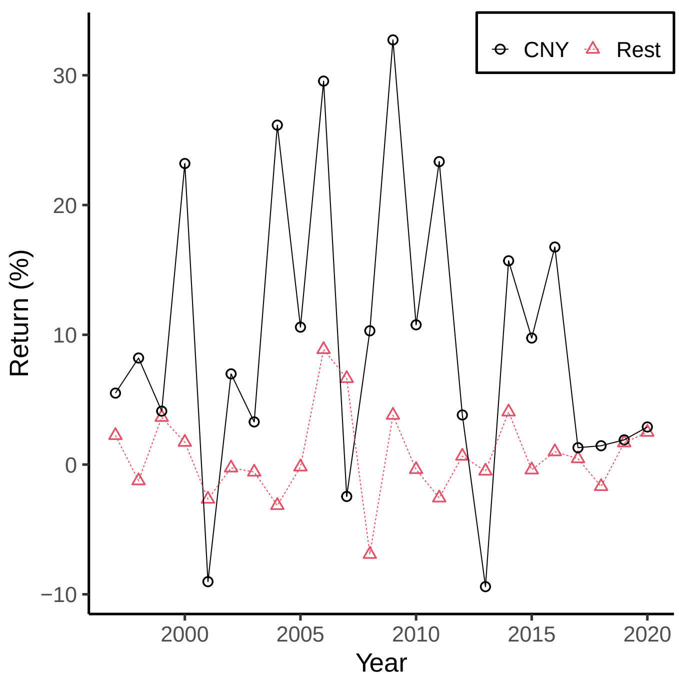
Table 1: Monthly stock returns

This table reports the average monthly returns for each calendar month. Columns 2 and 3 report average returns in the U.S. market from January 1964 to December 2020, columns 4 and 5 report average returns of Chinese stocks from January 1997 to December 2020, and columns 6 and 7 report average returns of Chinese stocks from January 2002 to December 2020. The columns labeled "EW" and "VW" report the equal-weighted returns and value-weighted returns, respectively. The row labeled "Premium" reports the difference in returns between January and other months for U.S. stocks and the difference in returns between February and other months for Chinese stocks. The row labeled "t-stat" presents the t statistics of these differences. All returns are given in percentage.

	USA (1964-2020)		China (1997-2020)		China (2002-2020)	
	EW	VW	EW	VW	EW	VW
Jan	4.883	1.142	1.874	1.342	0.716	0.455
Feb	0.895	0.146	6.575	3.086	7.078	3.627
Mar	0.790	0.577	6.253	2.609	3.810	1.200
Apr	1.343	1.269	3.154	2.629	2.157	2.411
May	0.257	0.153	4.333	1.013	3.004	0.557
Jun	-0.200	-0.120	0.688	-0.387	-2.999	-2.214
Jul	0.098	0.351	2.389	0.888	3.144	2.438
Aug	0.015	0.270	0.209	-1.895	0.568	-1.465
Sep	-0.335	-0.661	0.135	-0.756	0.515	-0.045
Oct	-0.973	0.361	-0.179	-0.233	-0.856	-0.557
Nov	1.230	1.599	2.830	0.988	2.795	1.170
Dec	0.939	1.251	1.063	1.578	1.773	2.817
Premium	4.514	0.669	4.488	2.362	5.736	3.001
t-stat	4.794	0.974	2.760	1.968	3.495	2.462



(a) Equal-weighted returns



(b) Value-weighted returns

Figure 3: Returns during CNY and the rest of the year
This figure plots the average of market returns during the CNY celebration period and the rest of the year from January 1997 to December 2020. The black points and red triangles correspond to returns during CNY and the rest of the year, respectively. Panel (a) plots the average of equal-weighted market returns and Panel (b) plots the average of value-weighted market returns.

Table 2: Holiday effect

This table reports the equal-weighted and value-weighted market returns during the celebration of CNY (row 3, labeled "CNY"), the rest of the year (row 4, labeled "Rest"), the difference between the two (row 5, labeled "Premium"), the t-stat of the premium (row 6, labeled "t-stat"), the average return in the first half of the CNY celebration period (row 8, labeled "1st Half"), in the second of the CNY celebration period (row 9, labeled "2nd Half"), their difference (row 10, labeled "Difference"), the t-stat between returns in the 1st half and the 2nd half (row 11, labeled "t-stat"), market returns one month before CNY (row 13, labeled "Pre-CNY"), one month after CNY (row 14, labeled "Post-CNY"), their difference (row 15, labeled "Difference") and t-stat (row 16, labeled "t-stat"). Columns 2 and 3 report the equal-weighted and value-weighted returns in the whole period from January 1997 to December 2020, respectively, and columns 4 and 5 report returns from January 2002 to December 2020. All returns are given in percentage.

	1997-2020		2002-2020	
	EW	VW	EW	VW
	Panel A: CNY vs. Rest			
CNY	15.978	9.550	15.964	9.419
Rest	1.974	0.589	1.219	0.503
Premium	14.003	8.961	14.745	8.916
t-stat	[4.724]	[3.153]	[5.000]	[3.251]
Panel B: First trading week vs. second trading week during CNY				
1st Half	11.274	10.070	11.370	10.319
2nd Half	19.768	9.130	19.726	8.683
Difference	8.494	-0.940	8.355	-1.636
t-stat	[1.485]	[-0.173]	[1.448]	[-0.306]
Panel C: One month before vs. after CNY				
Pre-CNY	0.004	-0.142	-1.164	-0.894
Post-CNY	5.777	2.106	4.869	1.470
Difference	5.772	2.248	6.034	2.364
t-stat	[2.391]	[1.049]	[2.177]	[0.968]

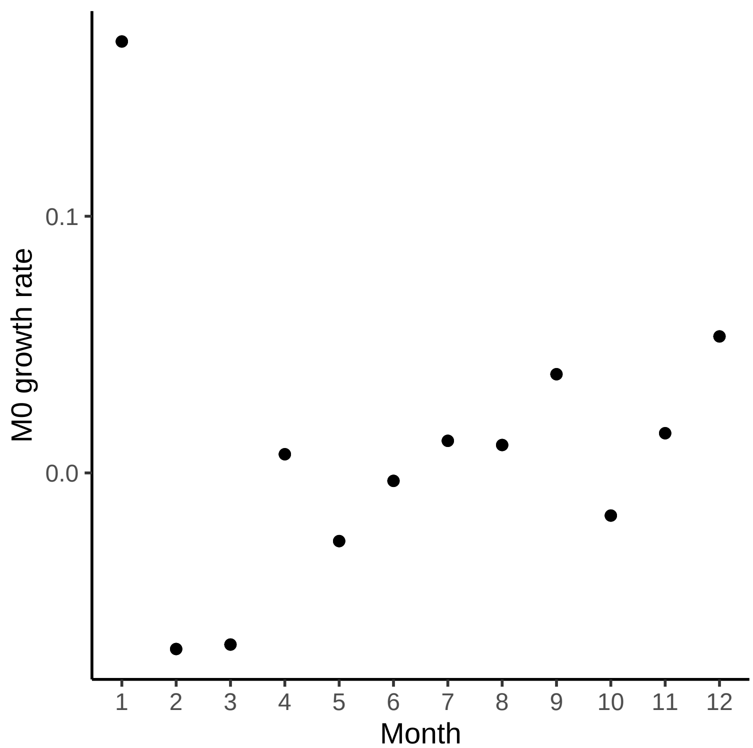


Figure 4: Changes in M0 in each month
This figure plots the average change of M0 across years from January to December. The sample period extends from January 1997 to December 2020.

Table 3: Trading volumes and values during holidays

This table reports average daily trading volumes and values during the celebration of CNY (row 4, labeled "CNY"), the rest of the year (row 5, labeled "Rest"), the difference between the two (row 6, labeled "Difference"), the t-stat (row 7, labeled "t-stat"), the average trading volumes and values in the first half of the CNY celebration period (row 9, labeled "1st Half"), in the second of the CNY celebration period (row 10, labeled "2nd Half"), their difference (row 11, labeled "Difference"), the t-stat (row 12, labeled "t-stat"), trading volumes and values one month before CNY (row 14, labeled "Pre-CNY"), one month after CNY (row 15, labeled "Post-CNY"), their difference (row 16, labeled "Difference") and t-stat (row 17, labeled "t-stat"). Columns 2 and 3 report the trading volumes and trading values in the whole period from January 1997 to December 2020, and columns 4 and 5 report trading volumes and values from January 2001 to December 2020. The reported numbers are converted to monthly by multiplying by 22 and reported in trillions. Trading value is in the Chinese currency.

	1997-2020		2001-2020	
	TVol	TVal	TVol	TVal
	Panel A: CNY vs. Rest			
CNY	0.378	4.041	0.432	4.604
Rest	0.383	4.359	0.479	5.435
Difference	-0.005	-0.318	-0.047	-0.831
t-stat	-0.215	-1.211	-1.855	-2.932
	Panel B: First trading week vs. second trading week during CNY			
1st Half	0.327	3.493	0.371	3.961
2nd Half	0.420	4.485	0.482	5.135
Difference	0.093	0.992	0.111	1.174
t-stat	2.109	2.028	2.379	2.248
	Panel C: One month before vs. after CNY			
Pre-CNY	0.342	3.747	0.421	4.614
Post-CNY	0.449	4.879	0.558	6.059
Difference	0.107	1.131	0.137	1.445
t-stat	3.890	3.690	4.343	4.091

Table 4: Return determinants

This table presents results of predicting stock returns in each lunar week. Returns are regressed on size (log of market capitalization) at the end of last period, returns in the past 12 months, beta computed using daily returns in the previous 12 months, and the Amihud liquidity in the previous 12 months. Each model controls for firm and year fixed effect. Standard errors are clustered at the firm level. t statistics are reported in brackets. ***, **, and * indicate the 1%, 5%, and 10% significance levels, respectively. The sample period is from January 1997 to December 2020. Models 1 and 2 use the full sample; models 3 and 4 limit the sample to the lunar weeks the Chinese New Year falls into, i.e., the second and fourth weeks of each lunar month.

	Model 1	Model 2	Model 3	Model 4
Model 5				
CNY	15.891***	13.817***	15.635***	13.054***
	[0.335]	[0.613]	[0.348]	[0.665]
Institutional holdings	0.127	1.378***	0.483	1.568***
	[0.277]	[0.292]	[0.442]	[0.457]
Size		-0.116***		-0.122***
		[0.008]		[0.009]
Returns		-4.798***		-6.453***
		[0.153]		[0.223]
Beta		-0.120		-0.002
		[0.127]		[0.193]
Illiquidity		0.686***		0.643***
		[0.025]		[0.032]
Institutional holdings * CNY	-8.202***	-4.853***	-9.099***	-5.248***
	[0.676]	[0.549]	[0.704]	[0.598]
Size * CNY		-0.048***		-0.057***
		[0.005]		[0.005]
Returns * CNY		-3.983		0.855
		[0.799]		[0.822]
Beta * CNY		0.397		0.508
		[0.526]		[0.551]
Liquidity * CNY		0.524***		0.610***
		[0.191]		[0.193]
Firm fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Sample	Full	Full	Same lunar week	Same lunar week
Adj R-squared	1.605%	2.168%	3.054%	3.698%