

The Calendar Effect of Online Shopping Festivals on China's Financial Market: Evidence from China's Singles' Day Shopping Festival

Tianyu Fu*

School of International Trade and Economics, University of International Business and Economics, Beijing, 100029, China

*futianyu110402@163.com

Abstract

Online Shopping Festival is a promotional activity created by those e-commerce platforms to set up a blockbuster which helps increase the general market value. In financial market, Calendar effect is one of the most common effect of behavioral finance. In China, anomaly in November financial market is that the stock price will go up without a reason corresponding to the traditional Efficient Market Hypothesis. In this passage, Online Shopping Festival, particularly Single's Day Shopping Festival, is treated as a traditional event of calendar effect. By using the Event Study Method framework and 83636 pieces of statistics from 489 companies, it is verified that Single's Day Shopping Festival has a positive calendar effect on China's financial market, causing abnormal returns during the period of festival. The psychological and behavioral cause of this anomaly is also discussed.

Keywords

Behavioral Finance, Online Shopping Festival, Event Study Method.

1. Introduction

As the most prevalent online shopping festival, through which the online shopping platforms, together with online merchants, promote online sales near the end of a year, Single's Day Festival has exerted substantial influence on China's e-commerce since it was initiated by Alibaba on November 11th, 2009, resulting in continuous and overwhelming commercial success, for example, 3.36 billion of sales in 2010. Although the popularity of this online commercial event has declined by year, its influence is profound. For years, scholars have carried out numerous researches on the factors that stimulate countless Chinese consumers into this shopping spree, including promoting activities, entertaining atmosphere and social interaction[1], among which the entertaining atmosphere and activities contributed most to participants' continuous excitement and intention[2].

People sometimes discard their rational thinking, submit to their emotions and carry out irrational decisions on some special date, such as the online shopping festival mentioned above. It also often is discovered in the financial market: the investor sentiment and overreaction often elicit anomalies in stock market on certain date, for example, the Spring Festival in China and Christmas in the USA. Such phenomenon, where the financial market acts abnormally at a certain date or in a regular routine and the anomaly of return and interests is predicable is called the calendar effect.

The purpose of this passage is to verify the calendar effect of Online Shopping Festival on Chinese stock market with the method of difference-in-difference. When reading concerning literature, the author discovered that there has left huge vacancy in the field of calendar effect in China's financial market. As China develops, the significance of investigating its financial

market rises abreast. Through the examination of the calendar effect in China's financial market, valuable insights can be derived that will facilitate the further development of the market. The rest part of the passage is arranged to demonstrate the previous literature, research design, outcome analysis and the conclusion and further discussion.

2. Literature Review

2.1. Literature Focusing on Online Shopping Festival

Due to the tremendous commercial success and business influence of China's Online Shopping Festival, scholars have attached considerable significance to the mechanism that the Online Shopping Festival attract participants. In 2017, Umair Akram et al.[3] investigated how practical and pleasure-driven browsing on websites exerts influence on online impulse purchase during China's "Single's Day" shopping festival. They also gave a clear definition of impulse buying: an unplanned and emotional-driven purchase. Their research confirmed a strong promotional influence on online impulse buying resulting from both utilitarian and pleasure-driven web browsing. Yang Liu et al.[4] also investigated the utilitarian and hedonic perspective of customers' online shopping behavior during Online Shopping Festival, while they supplemented it with social influence and herd behavior as mediating factors. In their research, social influence including peer and group impact amplify the herd behavior, which means chasing after the herd action without independent thinking due to the asymmetric information in the market. Liu also conceded that their research was lack of attention to external environmental factors of Online Shopping Festival. In Zhang's case study of JD "618" Online Shopping Festival[5], the impact of short-video media platforms and online marketing strategies are considered as environmental factors. Combing this case analysis, SWOT model and 4P's marketing model, Zhang concluded that JD "618"'s commercial success derived from the inclined resource to the new media platform so that the social influence and herd behavior involved more evidently.

Another group of scholars imported more scientific research methods to investigate Online Shopping Festival. Stimulus-Organism-Response(S-O-R)model and 5-point Likert questionnaire were the most adopted. Li et al[6] investigated influential factors of consumers' continuous participation in Singles Day Shopping Festivals and pointed out that both customers' trust and pleasure drove continuance intention in online shopping festival. Xie et al.[7] drew much attention to the atmospheric influence of Online Shopping Festival, which was verified in their passage that immersive Online Shopping Festival atmosphere evoked the excitement of customers and the excitement resulted in more continuous intention to Online Shopping Festival. During this process, the entertaining atmosphere and activities were most effective under limited time for promotion activities. According to a 5-point Likert questionnaire including more than 200 participants, Yulianto et al.[8] recognized the scarcity and hedonic motivation as the most significant drive for impulsive buying during Online Shopping Festival. Yu[9] studied cognitive heuristics, such as framing bias and anchoring, and their impact on Chinese customers' digital shopping behavior during festivals, but it was found that there was only weak correlation.

2.2. Literature Focusing on Behavioral Finance

There has been abundant literature exploring behavioral finance, taking investors' sentiment, psychology, and irrational decisions into consideration when researching the financial market. In David Hirshleifer's research, he gave a general introduction about Laurens Swinkels et al.[10] examined five calendar effects: Halloween, January, TOM, weekend, and holiday effect. However, only Halloween and TOM were robust effects under the examination and they left a puzzling question that investment returns peaked around month/year transitions but declined

mid-periods. Gao et al.[11] imported OLS regression model, using market indices and individual stock returns from 1990-2001 to precisely track the calendar effect. It was found that monthly calendar effect in China was particularly stimulated by Chinese New Year rather than taxation and the diminishing space for arbitrage due to the investors adapting to Chinese stock market, which tend to support EMH. Lack of taxes, amateur dominance, and fund-repayment cycles explain differences from global markets at that time. In order to address the challenge of testing calendar effects in stock returns while controlling for data mining biases, Hansen et al.[12] adopted χ^2 -test, which accounted for correlations among calendar effects, improving power over traditional methods, to compare average returns across calendar effects.

The literature above mainly discussed the background of behavioral finance and the calendar effect in Chinese stock market. Another aspect of behavioral finance is investors' sentiment and irrational decisions. Kirchler et al.[13] introduced psychological factors influencing financial decisions and highlighted cognitive biases (overconfidence, loss aversion) and social influences (herding) that led to irrational market behaviors. They emphasized the interplay of cognitive biases, affective states, and social influences in financial markets and advocated for improved financial literacy, institutional reforms, and policies to mitigate irrational behaviors. They also highlighted the importance of striking a balance between market freedom and regulation to promote trust and stability. Talal Alquraan et al.[14] took the Saudi Stock Market as an example to investigate the impact of behavioral finance factors, including loss aversion, overconfidence, herding and risk perception, on stock investment decisions of individual investors. They reached the conclusion, with a Likert questionnaire, that loss aversion, overconfidence and risk perception significantly impact Saudi investors' decisions.

3. Research Design

3.1. Research Hypothesis

Online Shopping Festival, which begins at a certain date annually and combines massive online promotional activities, successfully creates an atmosphere where customers lose their rational thinking and are controlled by their excitement and the confidence in themselves, thus resulting in huge GMV for online shopping platforms and individual impulsive buying. Similarly, in financial market, there are various calendar effects not corresponding with the Efficient Market Hypothesis which indicates that there is no arbitrage possibility if the market is a fully competitive one. Investors also seem not to follow the Rational Agent Hypothesis due to overconfidence, herding behavior and loss aversion in reality. During the Online Shopping Festival, time-limited promotional activities, entertaining atmosphere permeating the whole society through new online media and the strong peer influence elicit abnormally business outcomes. It's easy to notice that calendar effects in financial markets and Online Shopping Festival are in some ways similar in mechanism, taking advantage of investors' and customers' sentiments and the environment.

Based on the similarity and literature discussed above, we consequently assume that Online Shopping Festival acts similarly to traditional Chinese New Year, generating a calendar effect in the Chinese financial market.

3.2. Data Introduction

In this article, we aim to research the calendar effect of Online Shopping Festival on financial market in China, so statistically we need to test whether there exist abnormal return in China's financial market during the Online Shopping Festival. We collected the data of daily individual stock return adjusted for cash dividend reinvestment from July 1st, 2017 to March 31st, 2018 of 489 companies from SSE A-share listed companies, including various industries in relation to e-commerce and Online Shopping Festival, such as agriculture, manufacture, retail and

wholesale, transportation, storage and expressing, and information industry. Daily aggregate market return adjusted for cash dividend reinvestment of the same period was also collected. All data mentioned above originate from the CSMAR database to assure their credibility. To exclude the impact of COVID19 pandemic on global finance and business, which has not been completely eradicated so far, as well as assure the timeliness of the statistics, we chose the data which ends one year before the pandemic stroke the world.

To increase the preciseness and balance of the data, the basic data was modified. Finally, the 83626 pieces of statistics from 489 companies was remained: date of all companies whose statistics were lacking during the settled event window and estimate window or not enough for further experiment were deleted. Taking up a relatively minimal proportion, the adjustment of the original data exerts negligible influence on the effectiveness and robustness of the research.

4. Research Result and Analysis

According to Mackinlay's[15] essay in 1997, we adopt the ESM framework to test the calendar effect of the world-known Online Shopping Festival in China--Single's Day Festival on China's stock market.

4.1. Definition of the event--Single's Day Online Shopping Festival

Deriving from Alibaba in 2009, Single's Day Online Shopping Festival has impressed generations of Chinese customers with its heated discussion, appealing discounts and entertaining atmosphere constructed by numerous activities and widely spread promotional information through new media and social media. Although the Festival begins routinely on the exact date of November 11th, its warm-up often ten days ahead of it. Consequently, in our research, the event window was set to be the whole November, and estimate window was the 90-day period both before and after the event window.

4.2. Calculating Abnormal Returns Due to Single's Day Online Shopping Festival

In order to test the calendar effect, we shall calculate the abnormal returns during the whole event window. Abnormal returns is the difference value of actual return minus the predicted normal return during the event window. According to Mackinlay, the abnormal return of a firm i during the event window τ is calculated by the formula below:

$$AR_{i\tau} = R_{i\tau} - E(R_{i\tau}|X_{\tau})$$

$AR_{i\tau}$ is the abnormal return, $R_{i\tau}$, and $E(R_{i\tau}|X_{\tau})$ are the actual, and normal returns respectively for time period t . X_{τ} is the conditioning information for the normal return model. After calculating abnormal return, we need to calculate the cumulative abnormal return(CAR).

4.3. T-test

To enhance the robustness of the calendar effect the Single's Day Shopping Festival exerts on the Chinese financial market, we carried out the T-test of the CAR. According to the T-test, the regression outcome passed T-test under the $p < 0.001$, verifying the significance and robustness of the research. Due to the mass of data, the do file and the stata file will be attached.

5. Discussion

5.1. Potential Risk for Investors

Online Shopping Festivals in China commonly use the warm-up activities to heat the discussion and anticipation in the society and prolong the period of the festival. Under such circumstance,

it's easy to create an anxious and optimistic atmosphere, in which customers as well as investors tend to be more emotional than rational when they make their decisions on purchases and investments. In this essay, we conclude the risks below: First, overreaction to certain securities. Investors tend to be affected by short-term rise in the price of certain stock due to the GMV surge during the Online Shopping Festival. Second, information asymmetry leads to irrational investment decisions. The new media is renowned for its instant information transmission and the mountainous amount of information it delivers, forming an information cocoon for each investor. It's risky for investors to become credulous to such information which may not represent the actual condition of the financial market and decisions based on misled information are highly possible to result in losses.

5.2. Targeted Approach

Facing risks mentioned above, we think investors can take the suggestions below to avoid potential losses. Firstly, we suggest that investors focus on the normal value of the stocks that fluctuate abnormally during the Online Shopping Festival. According to our research, the calendar effect of Online Shopping Festival is often transient, meaning that the price of the stock cannot uphold for a long time and not enough for arbitrage. Secondly, investors, especially amateur investors, can attempt to broaden their information source except from short video platform or social network media, where investors are easily get deceived by the misleading information.

6. Conclusion

This essay is aimed to test whether the calendar effect on China's financial market exists in the famous Chinese Online Shopping Festival, Single's Day Online Shopping Festival. Using Event Study Method(ESM) framework and based on the seven-month financial statistics from CSMAR database, the research has found out that the coefficient of calendar effect is positive, causing an abnormal rise in stock return in China's stock market. T-test also verified the robustness of the research.

The conclusion is that Online Shopping Festival can promote not only sale of goods but also security. This essay is based on the S-O-R model. The atmosphere created by Online Shopping Festival stimulates customers' and investors' excitements, and investors' overreaction to Single's Day Online Shopping Festival responds in the abnormal rise in the return of concerning industries.

Besides, due to the restriction of researching time, the author failed to deeply discuss the reason why the effect on CAR is so small and didn't test other Online Shopping Festival. In the future, more samples and events can be included to more precisely examine the mechanism of the calendar effect of Online Shopping Festival in China.

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