A Study on the Impact of Sugar-Control Health Policy Announcements on the Abnormal Stock Returns of Traditional Sugary Drink Enterprises: Based on the Event Study Methodology

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Abstract: With the exacerbation of the global non-communicable disease burden, the upgrade of health needs has become an irreversible trend, and the "sugar-control" public health policies intensively introduced by governments constitute a systematic external shock to the beverage industry. This paper aims to study the impact of sugar-control health policy announcements (independent variable) on the abnormal stock returns of traditional sugary drink enterprises (dependent variable). Employing the event study methodology, this research designates the official announcement date of the UK Soft Drinks Industry Levy (SDIL) as the event day, selects core soft drink enterprises listed on the stock exchange as the sample, and calculates their abnormal returns using the single-factor market model. On the policy announcement day, the sample enterprises experienced statistically significant negative abnormal stock returns, with a maximum drop of 7.5%, which was significantly different from zero at the 5% level; whereas in the extended case study of the Chinese market, traditional enterprises that failed to conform to the sugar-control trend suffered a discount of nearly 50% in their forward price-to-earnings ratios. The main conclusion of this paper is that health policy announcements, as an external negative shock, will exert a significant negative impact on the stock prices of traditional sugary drink enterprises in the short term, but the duration of this impact is relatively short; the medium-to-long-term value recovery of enterprises depends on their strategic execution capabilities in transitioning toward sugar-free products.

Keywords: Sugar-Control Health Policy; Sugary Drink Enterprises; Abnormal Return; Event Study Methodology; Sugar-Free Transition

1. Introduction

Since the beginning of the 21st century, non-communicable diseases (NCDs) such as obesity and type 2 diabetes caused by the excessive intake of free sugars have become a core challenge to global public health. To address this crisis, the World Health Organization (WHO) released guidelines in 2015, recommending reducing the daily intake of free sugars to less than 10% of total energy intake [1], and in 2016 formally called on governments to utilize fiscal tools to impose excise taxes on sugar-sweetened beverages to curb their demand [2][7]. Subsequently, the Chinese government also issued the *Outline of the Healthy China 2030 Plan*, elevating national sugar reduction and healthy diets to a national strategic height [3]. Under this macroeconomic backdrop, the survival environment of traditional high-sugar beverage enterprises is facing unprecedented tests.

In the field of financial economics, the optimal theoretical foundation for evaluating the impact of macroeconomic policy mutations on micro-enterprise value is the Efficient Market Hypothesis (EMH) [4]. This theory posits that in a securities market with full information flow, current stock prices already completely reflect all known information; when new significant information, such as public health policies, is disclosed, investors will rapidly re-evaluate the future cash flows of enterprises, and this change in expectations will immediately and unbiasedly be reflected in the instantaneous fluctuations of stock prices. Based on this theoretical cornerstone, this paper aims to study the impact of sugar-control health policy announcements on the abnormal stock returns of traditional sugary drink enterprises.

2. Literature Review

In recent years, academia has conducted extensive research revolving around sugar-sweetened beverage taxes and the upgrade of healthy consumption demand[7]. At the consumer micro-behavioral level, modern consumer psychology research has widely adopted the extended "Value-Attitude-Behavior" (VAB) model, confirming that "health values" can significantly and positively affect young consumers' purchase intentions for functional and low-sugar beverages [5]. Further empirical estimations show that highly health-oriented consumers are willing to pay a significant price premium (WTPP) for beverages labeled "low/no sugar" on the packaging [6].

However, existing research mostly focuses on the impact of sugar-control policies on consumers' micro-purchasing behaviors and their long-term improvement effects on public health indicators, paying less attention to the immediate impact of such public health policies, as external shocks, on the financial value in the capital market and the abnormal stock fluctuations of beverage enterprises [4]. Therefore, this paper investigates the short-term shock of sugar-control health policy announcements on enterprises' abnormal stock returns to fill the research gap in this interdisciplinary field. According to microeconomic theory, punitive policy announcements targeting sugar-sweetened beverages will greatly increase consumers' perception of health risks, push up the expected terminal prices of products, and lead to the contraction of the demand curve for traditional high-sugar drinks, prompting the capital market to downgrade the short-term valuations of relevant enterprises based on this [8]. Based on the above deduction, this paper proposes the following hypothesis to be tested:

H1: The announcement of sugar-control health policies has a significant negative impact on the stock prices of traditional sugary drink enterprises.

3. Data and Methodology

This study employs the classic event study methodology to quantitatively evaluate the impact of health policy announcements on corporate stock returns.

●**Data Sources and Sample Selection**: The historical stock trading price data for this study are sourced from Yahoo Finance and the public databases of relevant stock exchanges; policy event node data are obtained through searches of official government websites and mainstream financial news. This paper selects four enterprises primarily engaged in the soft drink business listed on the London Stock Exchange (such as AG Barr, Britvic, Nichols, etc.) as the initial sample [4]. Meanwhile, to ensure data purity, this paper formulates strict data cleaning/exclusion rules: any stock sample that simultaneously experiences compound major events such as earnings announcements, executive changes, major asset restructurations, or dividend payouts during the event window is excluded to eliminate interference. After screening, the final effective sample size used for the model is N = 4 [4].

●**Event Day Definition and Rules**: This paper explicitly defines the date when the UK Treasury first officially announced the "Soft Drinks Industry Levy" (SDIL) bill (i.e., March 16, 2016) as the benchmark "Event Day (T=0)" [4][8]. During the data alignment process, if the policy announcement or unexpected event occurs on a non-trading day (such as a weekend or public holiday) or is released after the stock market closes, the event day is uniformly postponed to the immediately adjacent next effective trading day.

●**Window Period Length Delineation**: This study clearly delineates two time windows. First, the Estimation Window is set to the 120 trading days prior to the event, specifically the interval [-125, -6], used to calculate the normal return parameters of individual stocks; second, the Event Window is set to the 11 trading days around the event, specifically the interval [-5, +5], used to capture information leakage and the price digestion process following the event.

●**Core Calculation Formulas and Market Benchmark**: This paper uses the London FTSE 100 Index as the proxy variable for the broad market return rate. A single-factor market model is used to estimate the normal expected return rate:

$$R_{jt}=\alpha_j+\beta_j R_{mt}+\varepsilon_{jt} \quad (1)$$

where R_{jt} is the actual return rate of enterprise j during period t, R_{mt} is the concurrent broad market index return rate, and α_j and β_j are the regression parameters within the estimation window.

●**Abnormal Return (AR) Calculation**:

$$AR_{jt}=R_{jt}-\left(\hat{\alpha}_j+\hat{\beta}_j R_{mt}\right) \quad (2)$$

where AR_{jt} represents the excess fluctuation of individual stocks after stripping away market risks.

●**Cumulative Abnormal Return (CAR) Calculation**:

$$CAR_j(t_1,t_2)=\sum_{t=t_1}^{t_2} A R_{jt} \quad (3)$$

This formula is used to measure the cumulative impact over a specific period within the event window.

4. Empirical Results

Through the event study model calculation, this research measured the stock return fluctuation performance of the N = 4 sample enterprises within the event window. The data results provide preliminary support for the H1 hypothesis. On the event day (T=0), 3 out of the 4 core sample enterprises suffered obvious selling pressure, showing abnormal declines. Specific data indicate that the core stock AG Barr's price dropped by 6% in a single day, Nichols fell by 7.5%, and Britvic's stock price dropped by 3.3% [8]. In statistical testing, the Average Abnormal Return (AAR) on day T=0 was significantly different from zero and negative at the 5% level, proving that the sugar-control policy announcement caused immediate market value depreciation in the capital market.

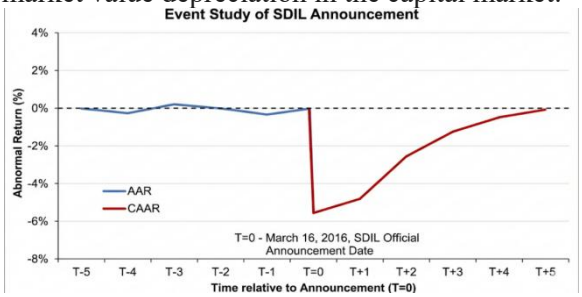

Figure 1. Analysis of Abnormal Stock Returns Around the UK Sugar-Control Policy Announcement Day

Note: AAR (Average Abnormal Return) represents the average abnormal return rate; CAAR (Cumulative Average Abnormal Return) represents the cumulative average abnormal return rate. The horizontal axis T=0 represents the official announcement day of the sugar-control policy.

The subsequent trend in Figure 1 indicates that this negative cumulative abnormal return is transient. The reason the sample enterprises were able to achieve rapid value recovery is, on the one hand, attributed to their ability to pass tax costs on to consumers (the tax pass-through rate was calculated to reach 204%) [9]; on the other hand, it depends on their strategic actions in transitioning towards sugar-free products.

This conclusion has also been corroborated by cross-sectional data in the Chinese market. Since the *Healthy China Action* in 2019 explicitly proposed the advocacy that per capita daily intake of added sugar should not exceed 25 grams, the Chinese beverage industry has undergone dramatic changes [10]. Genki Forest, a new-force enterprise with "0 sugar" as its core selling point, has gained frantic pursuit from capital [11](as shown in Figure 2).

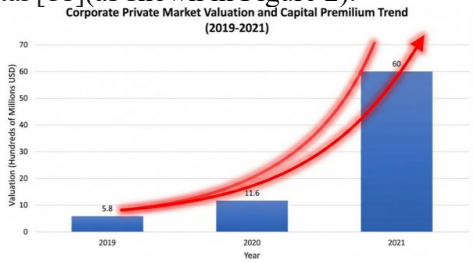

Figure 2: Valuation Leap Chart of Sugar-Free New Force Enterprises in the Health Track — A Case Study of Genki Forest

Note: The chart displays the private market valuation jump of specific unlisted cutting-edge enterprises based on financing rounds.

In stark contrast, when facing this health upgrade shock during the same period, the two traditional beverage giants in China (Master Kong and Uni-President), due to their divergent strategic choices, resulted in completely different fundamental financial performances and stock valuation re-ratings (see Figure 3).

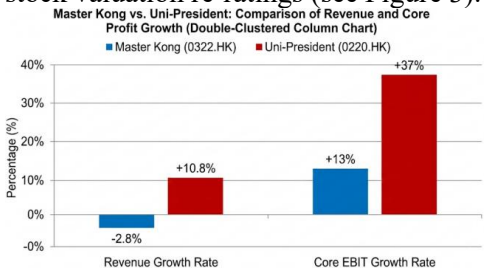

Figure 3. Contrast Chart of Transformation Effectiveness and Capital Market Indicators of the Traditional Beverage Duopoly in H1 2025

Note: Data intercepted from relevant investment bank research reports in the first half of 2025.

Empirical data shows that due to the lack of strong sugar-free health single products and an over-reliance on price hikes for high-sugar products, Master Kong's forward price-to-earnings ratio fell to about 13 times, representing a discount of up to 50% compared to its historical average level, and it suffered a downgrade by investment institutions [12];

whereas Uni-President, which actively mapped out a sugar-free tea beverage matrix, obtained a long-term valuation premium.

5. Conclusion and Limitations

Based on the Efficient Market Hypothesis and the event study methodology, this study draws the main conclusion: the official announcement of sugar-control policies will exert a significant short-term negative shock at the 5% level on the stock prices of traditional sugary drink companies, triggering abnormal declines. However, the data also shows that this market panic effect is short-lived, and whether an enterprise can cross the policy cycle to maintain corporate value fundamentally depends on its strategic response capability to abandon high-sugar products and reshape its matrix towards sugar-free/low-sugar healthy products.

While affirming the findings of this study, the limitations present in the research design must be frankly acknowledged. First, to strictly comply with the exclusion rules for compound events to ensure event cleanliness, the final effective sample size included in the event model is small (N = 4), which somewhat limits the extrapolation of the statistical conclusions to broader global markets. Secondly, although the model isolates the market benchmark return rate, short-term fluctuations in the stock market may still be subjected to interference from unobserved micro-emotional noise in other industries, which cannot be completely controlled. Finally, the data on short-term stock price declines only proves short-term capital revaluation, and absolutely cannot be forcefully elevated in the conclusion to over-extrapolate that "policies will cause immediate corporate bankruptcy".

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