Stock Repurchase Market Response under Performance Differences: An Event Study Based on Heng Rui Medicine and Hong Yuan Pharmaceutical

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Abstract. This paper uses the event study method to examine the market response of stock repurchase announcements on stock prices, taking Heng Rui Medicine and Hong Yuan Pharmaceutical as case studies. The event window (Day -10 to Day +10) is selected to analyze actual returns, excess returns, and cumulative excess returns, with t-tests conducted to verify the significance of differences. The results reveal the heterogeneous effects of repurchase announcements on the market. The findings show that Heng Rui Medicine, with solid fundamentals and a strong financial position, gained market recognition for its repurchase announcement in the later stages, showing a positive "value recovery" effect with a stable increase in stock prices. In contrast, Hong Yuan Pharmaceutical, facing performance pressure and lacking market trust, saw its repurchase announcement interpreted as a "market support" strategy, which triggered a negative response and led to a signal backlash, resulting in poor stock price performance. This study emphasizes that the key to whether a repurchase announcement sends a positive signal lies in the company's fundamentals and the level of market trust, not in the announcement's format itself. Based on this, the paper suggests that managers optimize the timing of repurchases and transparency in information disclosure, regulators enhance market regulations, and investors make rational investment decisions. The paper also points out the study's limitations, such as the small sample size and the subjectivity in choosing the event window, and suggests that future research could extend to more industries or longer periods.

Keywords: Stock Repurchase, Event Study Method, Excess Returns, Signaling Effect, Heng Rui Medicine.

1 Introduction

With the continuous improvement of China's capital market system, stock repurchase has become an increasingly important tool for A-share listed companies to convey market signals, optimize capital structure, and stabilize stock prices [1]. Especially after the revision of the "Company Law" in 2018, which relaxed the conditions for repurchase, the number and scale of stock repurchase cases in the A-share market have significantly increased. Stock repurchase has gradually evolved from a "special measure" to a "routine tool" [2]. However, despite the growing number of repurchase announcements, the

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market response to repurchase plans from different companies shows significant heterogeneity. This difference reflects not only the high degree of information asymmetry and the large proportion of retail investors in the A-share market but also the crucial role of company fundamentals and performance in market interpretation.

From a theoretical perspective, signaling theory suggests that stock repurchase announcements send a positive signal that the company is undervalued, which can stimulate a positive market reaction [3, 4]. Agency theory further explains that repurchase can reduce agency costs by lowering free cash flow, thus increasing company value [5, 6]. Market efficiency theory stresses that, in the context of information asymmetry and differences in investor perception, repurchases may not generate a consistent market response [7, 8]. Foreign studies have generally found that repurchase announcements are accompanied by positive excess returns, but in markets with lower transparency, the effect may be weaker [9]. Domestic studies have pointed out that, due to the retail-dominated A-share market and low investor trust, the signaling effect of repurchase announcements is often limited by the quality of company fundamentals and the credibility of the execution. The company's performance cycle, in particular, has been considered a key variable in market interpretation. Companies in an upward performance cycle are often seen as undertaking a "value recovery" repurchase, while companies in a downward performance cycle are suspected by the market of using repurchase to "stabilize" or "cover up problems," leading to a signal backlash [10].

Although significant contributions have been made to the field of stock repurchase market response, there are still gaps. First, the influence of performance differences on the signaling effect of repurchase has not been systematically analyzed, particularly in the context of the retail-dominated and information-asymmetric A-share market. Second, most studies treat companies as homogeneous samples, neglecting the moderating effect of the performance cycle on market interpretation, making it difficult to reveal the heterogeneity of the signaling effect fully. To address these gaps, this paper selects Heng Rui Medicine (performance rising) and Hong Yuan Pharmaceutical (performance declining) as case studies and uses the event study method to systematically analyze the short-term market response differences to repurchase announcements under different performance conditions in the A-share market. The core questions of this study are: Does a repurchase announcement trigger different market responses at different performance stages? What are the underlying mechanisms of signal transmission?

This paper applies the event study method to explore the impact of stock repurchase announcements on stock prices, aiming to provide a reference for both businesses and regulators. By examining Heng Rui Medicine and Hong Yuan Pharmaceutical as case studies, performance is classified using financial indicators such as net profit and revenue growth rate. An event window (Day -10 to Day +10) is constructed to calculate Cumulative Abnormal Returns (CAR) to assess market response. The CAR differences between the two companies are compared to analyze how performance influences the signaling effect of repurchase and identify causes such as information asymmetry and investor trust. This study's innovation lies in revealing the moderating effect of the performance cycle on the signaling effect, filling a gap in existing research. The paper also

analyzes the heterogeneity of the repurchase effect, taking into account the characteristics of the A-share market, and provides a basis for optimizing corporate disclosure, rational investor judgment, and regulatory improvements.

2 Literature Review

2.1 Theoretical Basis of Stock Repurchase Market Response

Research on the market response to stock repurchase is mainly based on signaling theory, agency theory, and market efficiency theory. Signaling theory suggests that companies use repurchase announcements to send a positive signal that their stock is undervalued. In markets with high information asymmetry, this signal can significantly influence investor expectations, leading to a positive market reaction. Agency theory further suggests that repurchase can effectively reduce the misuse of management resources and optimize capital structure, thus increasing company value. Market efficiency theory emphasizes that whether a repurchase announcement triggers abnormal returns is an important test of market efficiency. These theories collectively form the basis for analyzing the market response to repurchase announcements. However, their applicability may vary depending on company characteristics such as performance, suggesting that future empirical research should focus on the impact of company heterogeneity on the signaling effect.

2.2 Review of Domestic and Foreign Empirical Studies

Foreign research has provided important insights into the market response to stock repurchases. Ikenberry et al. found that repurchase announcements in the U. S. market generally lead to significant short-term excess returns, reflecting the market's recognition of the favorable signal. Grullon & Michaely further noted that market reactions are influenced by factors such as the company's lifecycle and governance structure, but there is less focus on the potential role of performance differences. In domestic research, Wang Huacheng et al. used the event study method and found that A-share repurchase announcements generally trigger positive abnormal returns, with the most significant effect occurring before and after the announcement date. Li Qiming emphasized that a low execution rate may weaken the signaling effect and cause stock price volatility. However, both domestic and foreign research have rarely explored the differences in how repurchase announcements are interpreted from the perspective of performance differences. In particular, in the A-share market, characterized by high information asymmetry and a large proportion of retail investors, the market response to companies in a performance rising stage versus a declining stage may differ significantly.

In conclusion, existing research provides a theoretical and empirical foundation for the market response to stock repurchase, but there is insufficient attention to performance differences. This paper uses Heng Rui Medicine (performance rising) and Hong Yuan Pharmaceutical (performance declining) as case studies, based on the event study method, to analyze the impact of performance differences on the short-term market

response to A-share repurchase announcements. The paper aims to fill this gap in research.

3 Research Design

3.1 Selection of Sample Companies and Event Data

To systematically analyze the short-term market response to stock repurchase announcements under different performance states, this paper selects Hong Yuan Pharmaceutical (performance declining) and Heng Rui Medicine (performance rising) as case studies and applies the event study method. This method calculates Abnormal Returns (AR) and cumulative abnormal returns (CAR) to effectively measure abnormal stock price fluctuations following repurchase announcements and reveal the market's response to the repurchase signal.

3.2 Event Study Method Model Setup

In this study, the Shanghai-Shenzhen 100 Index is used as the market benchmark return (Market Return, CMR) to estimate the abnormal returns of the two companies before and after the event day (Day 0). The difference between the actual return of the company and the market benchmark return is the abnormal return (AR). To estimate the normal return, the market model is used for regression analysis, which provides the normal return prediction for each company and compares it with the actual return. The specific steps are shown in Figure 1.

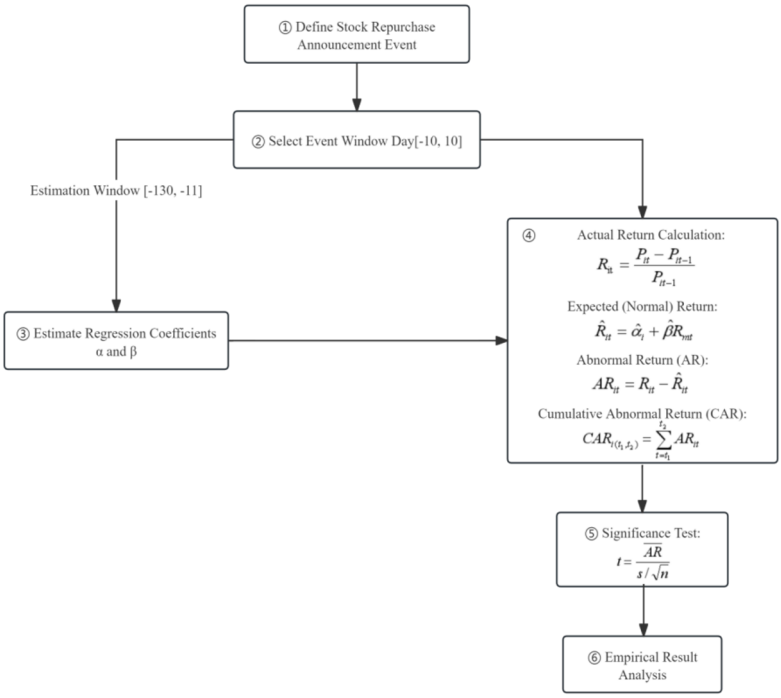

Fig. 1. Process diagram of the event study method (Picture credit : Original).

3.3 Experimental Results and Analysis

Analysis of Actual Returns and Market Benchmark Returns. First, it calculate the daily actual returns and market benchmark returns for Hong Yuan Pharmaceutical and Heng Rui Medicine within the event window [-10, +10], and plot comparison charts. As shown in Figure 2, Heng Rui Medicine's cumulative actual returns closely follow the market benchmark trend. Although there is a short-term fluctuation after the event date, the overall performance remains consistent with the market. From Day +7 to Day +8, actual returns slightly outperform the market, reflecting a mild positive market response to the repurchase announcement, indicating stable investor confidence. In contrast, Figure 3 reveals that Hong Yuan Pharmaceutical's performance deviates significantly from the market trajectory. On the event day and in the following days, actual returns decline sharply, deviating from the market benchmark, especially on Day +3 when the stock reaches its lowest point. This indicates that the market reacted negatively to the repurchase announcement, questioning its true intentions. Afterward, the stock price remained sluggish, and the cumulative returns sharply declined, suggesting that the announcement signal was not recognized and even had a negative impact. Overall, Heng Rui Medicine's repurchase was viewed as a value signal, with a positive market reaction driven by solid performance, while Hong Yuan Pharmaceutical's repurchase failed to gain market trust and instead raised concerns, highlighting the critical role of fundamentals in market interpretation.

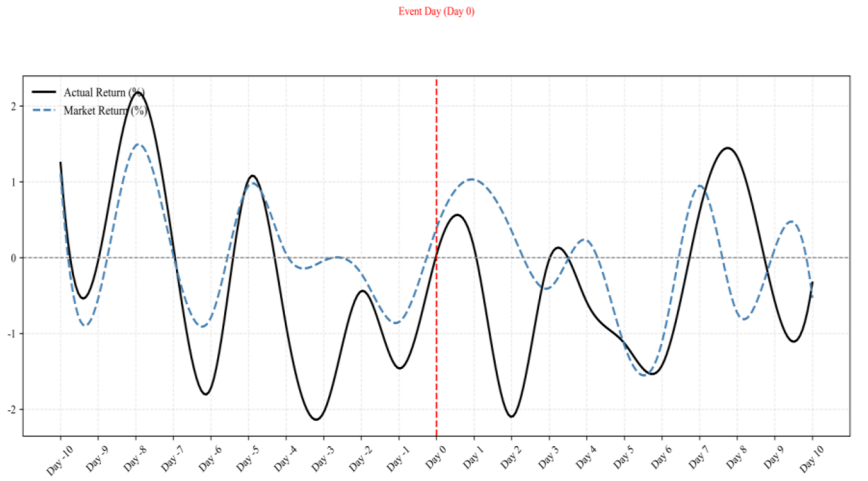

Fig. 2. Comparison of actual return rate and market benchmark return rate within the event window of Hengrui Pharmaceutical (Picture credit : Original).

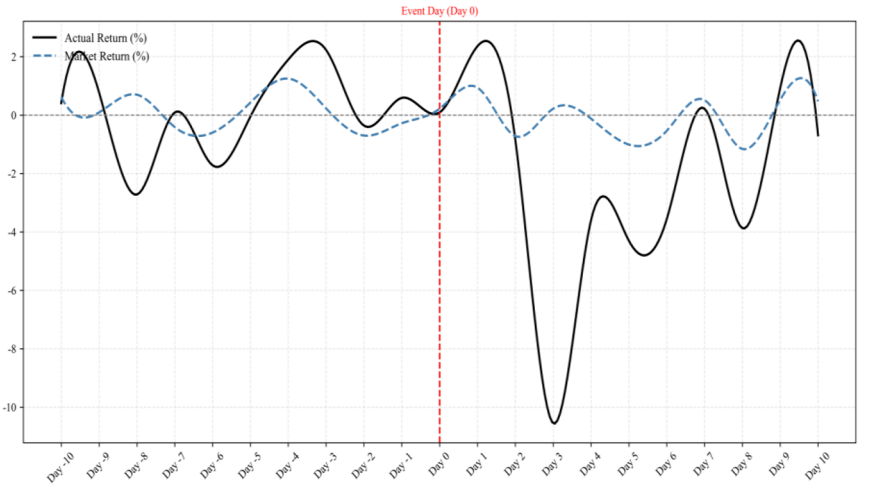

Fig. 3. Comparison of actual return rate and market benchmark return rate within the event window of Hongyuan Pharmaceutical (Picture credit : Original).

Significance Test Results Analysis. During the event window (Day -10 to Day +10), Heng Rui Medicine and Hong Yuan Pharmaceutical exhibit clear differences in excess returns (AR) and cumulative excess returns (CAR), reflecting different market signals sent by their repurchase announcements. Figure 4 shows that Heng Rui Medicine already had some positive excess returns before the announcement, with CAR gradually rising to about 2. 8%. This suggests that the market had optimistic expectations or had already factored in the repurchase signal. On the event day and the next two days, AR

slightly decreased, and CAR briefly dropped into negative territory, showing that the market initially took a cautious stance. However, from Day +7 to Day +8, AR rebounded significantly, and CAR stabilized in the positive range, approaching +2%, reflecting the market's positive recognition of the repurchase, consistent with the positive interpretation of "good performance + steady repurchase. "For Hong Yuan Pharmaceutical, as shown in Figure 5, AR was stable before the event, and CAR was slightly positive. However, after the announcement, AR turned negative starting from Day +2, and by Day +3, it plummeted nearly -10%. CAR dropped sharply and reached nearly -20% by the end of the event period. Although there was a rebound afterward, the overall sentiment did not recover, indicating that the market had serious doubts about the repurchase and interpreted it as a "market stabilization" strategy or an attempt to mask performance, leading to a significant signal backlash. In conclusion, Heng Rui Medicine's positive performance and moderate repurchase gained market approval, with the announcement not immediately stimulating but receiving subsequent support. In contrast, Hong Yuan Pharmaceutical's repurchase was viewed skeptically due to performance pressure, and the announcement became a catalyst for pessimism. This shows that the market response to repurchases depends on company fundamentals and the credibility of the information, rather than the announcement itself.

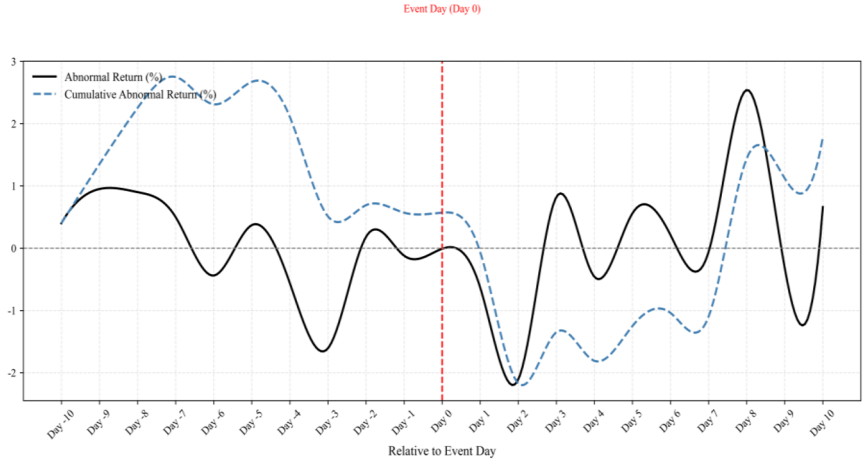

Fig. 4. Comparison of excess return and cumulative excess return within the event window of hengrui pharmaceutical (Picture credit : Original).

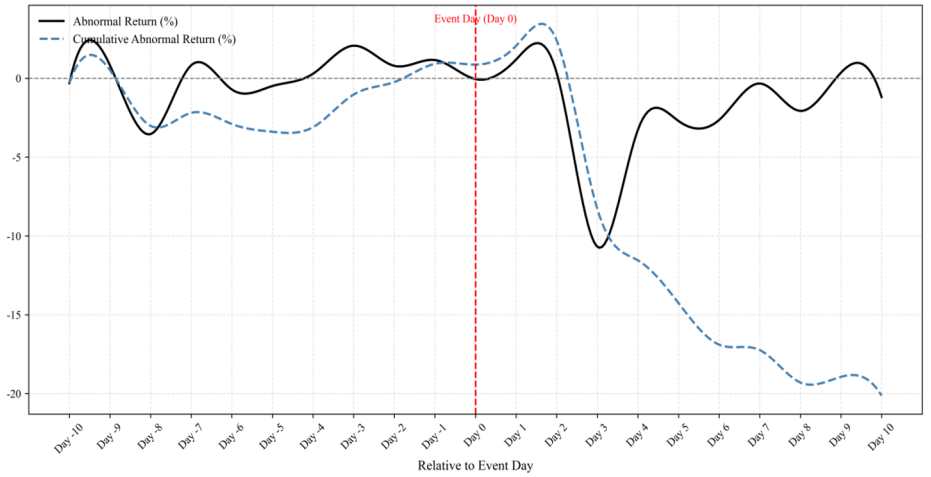

Fig. 5. Comparison of excess return and cumulative excess return within the event window of hongyuan pharmaceutical (Picture credit : Original).

Table 1. Significance Analysis within the Event Window of Hengrui Pharmaceutical.

Event day	$R_{t,AR}$	$R_{t,CAR}$	Signifi-cance	Event day	$R_{t,AR}$	$R_{t,CAR}$	Signifi-cance
-10	0. 004	0. 004	*	1	-0. 0063	-0. 0007	**
-9	0. 0095	0. 0135	**	2	-0. 0211	-0. 0218	**
-8	0. 009	0. 0225	**	3	0. 0082	-0. 0136	**
-7	0. 005	0. 0275	**	4	-0. 0046	-0. 0182	**
-6	-0. 0044	0. 0231	**	5	0. 0056	-0. 0126	**
-5	0. 0037	0. 0268	*	6	0. 0021	-0. 0105	
-4	-0. 0056	0. 0212	**	7	-0. 0006	-0. 0111	
-3	-0. 0161	0. 0051	**	8	0. 0254	0. 0143	**
-2	0. 0018	0. 0069		9	-0. 0032	0. 0111	
-1	-0. 0012	0. 0057		10	0. 0066	0. 0177	**
0	-0. 0001	0. 0056					

Significance Test Results Analysis. To further explore the market reaction mechanism of repurchase announcements, t-tests were conducted on the daily excess returns and cumulative excess returns of Heng Rui Medicine and Hong Yuan Pharmaceutical within the event window. The results of the tests are shown in Table 1. For Heng Rui Medicine, the test results show that during the entire event window, 12 trading days had significant non-zero $R_{t,AR}$ values, with multiple days from Day -10 to Day -3 showing significantly positive results. This suggests that the market partially anticipated the repurchase before the announcement, reflecting a cumulative effect of prior expectations. From Day +1 to Day +5, the continuous negative significance suggests that after the repurchase announcement, the market interpreted the signal cautiously or even negatively. However, in the later period (Day +8 and Day +10), positive significance reappeared, and the cumulative returns eventually rose to positive values (1. 77%), reflecting a lagged acceptance of the market reaction.

Table 2. Significance Analysis within the Event Window of Hongyuan Pharmaceutical.

Event day	$R_{t,AR}$	$R_{t,CAR}$	Significance	Event day	$R_{t,AR}$	$R_{t,CAR}$	Significance
-10	-0. 0030	-0. 0030		1	0. 0119	0. 0206	
-9	0. 0082	0. 0052		2	0. 0034	0. 0240	
-8	-0. 0354	-0. 0302	**	3	-0. 1069	-0. 0829	**
-7	0. 0083	-0. 0219		4	-0. 0326	-0. 1155	**
-6	-0. 0071	-0. 0290		5	-0. 0271	-0. 1426	**
-5	-0. 0049	-0. 0339		6	-0. 0264	-0. 1690	**
-4	0. 0029	-0. 0310		7	-0. 0033	-0. 1724	
-3	0. 0207	-0. 0103		8	-0. 0207	-0. 1930	*
-2	0. 0079	-0. 0024		9	0. 0036	-0. 1894	
-1	0. 0116	0. 0092		10	-0. 0119	-0. 2013	
0	-0. 0005	0. 0087					

In contrast, the t-test results for Hong Yuan Pharmaceutical in Table 2 show more significant fluctuations. From Day +3 to Day +6, there were four consecutive days of highly significant negative excess returns, with the largest drop reaching -10. 69%. The cumulative excess return had fallen to -20. 13% by Day +10. Although there were brief

positive significant values on some days (e. g. , Day -3), no trend reversal occurred. This suggests that the repurchase announcement was not seen as a positive signal in the market but instead triggered the release of negative sentiment. Given Hong Yuan Pharmaceutical's declining performance at the time, it can be inferred that the market interpreted the repurchase as a "market value management" or "confidence masking" strategy, triggering short-term selling pressure and resulting in a significant signal backlash. Combining the t-test results from both companies, it is evident that while both companies implemented repurchase plans, the market's response to the repurchase signal was clearly different due to differences in fundamentals, performance cycles, and market trust. Heng Rui Medicine's repurchase signal gradually gained market recognition, while Hong Yuan Pharmaceutical triggered a reverse reaction. This confirms that the repurchase market effect is significantly moderated by a company's performance background, and the t-test provides empirical evidence of this significant difference.

Results and Analysis. Further analysis of the fundamental indicators of the two companies helps better explain the cause of the market's differing reactions. As shown in Table 3, Heng Rui Medicine's return on equity (ROE) for the year of the announcement (2024) was 13. 75%, with a net profit growth rate of 47. 28% and a price-to-earnings (P/E) ratio of 61. 55, demonstrating strong profitability and growth potential. In contrast, Hong Yuan Pharmaceutical's ROE was only 1. 18%, with a net profit decline of 40. 96%, and a P/E ratio of 120. 08, reflecting weak profitability, high valuation, and insufficient fundamental support. In an information-asymmetric market environment, investors' interpretations of repurchase announcements are significantly influenced by these financial indicators.

Table 3. Comparison of Key Financial Indicators between Hengrui Pharmaceutical and Hongyuan Pharmaceutical in 2024.

Index	Hengrui Pharmaceutical	Hongyuan Pharmaceutical
Net profit	6. 337 billion yuan	0. 5147 billion yuan
Net profit year-on-year growth rate	47. 28%	-40. 96%
Shareholders' equity	46. 09 billion yuan	4. 361 billion yuan
ROE (estimated)	13. 75%	1. 18%
Price to earnings ratio (PE)	61. 55	120. 08

Thus, this paper argues that the market's reaction to stock repurchase announcements is not a homogeneous "positive" or "incentive" but a dynamic outcome of a game based on the company's fundamentals, the quality of information disclosure, and the level of investor trust. For companies with solid fundamentals, strong repurchase capacity, and transparent information disclosure, the repurchase behavior is more likely to convey an "undervaluation" signal, leading to a positive market response. For companies under financial pressure, with unclear information disclosure or a history of unimplemented

repurchases, the market may interpret the repurchase as a short-term "stabilization" strategy, which leads to negative associations.

4 Conclusion

This paper conducts an event study on Heng Rui Medicine and Hong Yuan Pharmaceutical's stock repurchase announcements and empirically analyzes the signaling effect of stock repurchases in the capital market. The study shows that a company's fundamental conditions, the transparency of information disclosure, investor structure, and the external market environment all significantly influence the market's response to repurchase announcements. Heng Rui Medicine, as a company with stable performance, had its repurchase announcement interpreted by the market as a signal of undervaluation, ultimately leading to significant positive excess returns. In contrast, Hong Yuan Pharmaceutical's repurchase was seen as a "market support" action, leading to a negative market reaction. These results indicate that the market effect of stock repurchase announcements is heterogeneous, regulated by multiple factors, and varies significantly across different company backgrounds. Therefore, the interpretation of a repurchase signal is not simply positive or negative but the result of a process of information interpretation.

Based on these findings, this paper provides the following recommendations and future outlook. First, when formulating repurchase plans, listed companies should consider their financial condition and market expectations, avoiding blind repurchases, especially when profitability is declining or market confidence is lacking, requiring more caution. Additionally, companies should enhance information disclosure, clarifying the sources of repurchase funds and execution plans to improve the transparency and credibility of the announcement. Second, regulators should improve the stock repurchase information disclosure system, establish pre-approval and post-reporting mechanisms, and strengthen supervision of companies that frequently repurchase stocks to prevent "fake repurchases" from disrupting market order. Finally, investors should interpret repurchase announcements rationally, paying attention to company fundamentals, the content of the announcements, and market conditions, avoiding blindly following repurchase signals. Although this study reveals the market effect of stock repurchase announcements, due to limitations in sample size, the singularity of the event window, and the failure to control potential interference variables, the external validity and long-term effects of the conclusions need further verification. Future research could expand the sample size, extend the observation period, and incorporate more variable controls and AI tools to explore the impact of different company types and repurchase methods on market reactions, providing theoretical support and empirical evidence for improving the stock repurchase system.

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