

# Principles and Economic Consequences Analysis of Short-Selling Mechanisms for Listed Companies from the Perspective of Information Disclosure: A Case Study of Luckin Coffee

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**Abstract:** This paper, using Luckin Coffee as a practical case study, explores the principles and economic consequences of short-selling mechanisms for listed companies from the perspective of information disclosure. Short selling represents investors predicting a downward trend in stock prices, borrowing stocks before selling them when prices fall, and profiting from the price difference. The short-selling mechanism diversifies the entire market and serves as a self-cleansing process in the trading market. It efficiently exposes illegal activities and regulatory violations of listed companies to heightened market scrutiny through various means, effectively curbing such misconduct. It also allows investors to express pessimism about specific markets and stocks while profiting from it. However, the short-selling mechanism also introduces potential issues. In a market like China, which has a relatively short stock market history, incomplete legal systems, imperfect regulations, and information asymmetry, excessive short-selling pressure can lead to speculation, market volatility, excessive stock price declines, and impacts on corporate valuations. Therefore, the short-selling mechanism is a double-edged sword for listed companies, beneficial for market development, but also posing various potential threats. Adequate information disclosure is indispensable for market supervision to ensure positive market growth and stability.

**Keywords:** Information disclosure, short-selling, listed companies, market supervision.

## 1. Introduction

Since the initiation of stock market reforms and opening in China in 1979, it has undergone a lengthy and transformative journey. As of early June 2023, including the Shanghai, Shenzhen, and Beijing Stock Exchanges, the total number of listed companies in China has reached 5,192. The total market capitalization of A-shares has approached 90 trillion yuan, marking a 5.43% increase from the 84.89 trillion yuan at the end of 2022 and a significant 87.16% growth compared to the end of 2018 over the past five years. Despite facing multiple pressures and the influence of a massive market base, the overall operational growth of listed companies in 2022 has slowed down slightly, but it still maintains a steady growth trend. This demonstrates the resilience of listed companies as leading enterprises in various industries and their ability to achieve high-quality development. Additionally, with the release of overseas risks, the recovery of the domestic economy, and policy support, A-shares have shown strong medium to long-term resilience after recent emotional declines, with many high-quality leading listed companies being undervalued. Although all the conditions point to an improvement in the economic situation, the pervasive problem of financial fraud, which has always been a cancer in the capital market, continues to escalate, deeply harming the stable development of China's capital market and the common interests of a vast number of investors.

## 2. Literature Review

### 2.1. Principles of Short-Selling Mechanism

The short-selling mechanism is a financial strategy

enabling investors to profit when the market is declining. It involves borrowing assets from a brokerage, selling them at the current price, and later repurchasing them at a lower price to return to the brokerage, thereby capitalizing on the price difference. This mechanism provides investors with a means to hedge against market risks, balancing bullish and bearish sentiments to maintain market stability.

### 2.2. Importance of Information Disclosure

Information disclosure mandates publicly listed companies to share relevant information with the public, ensuring investor access to information and fair trading. Transparent information disclosure is crucial for several reasons:

**Informed Decision-Making.** Transparent disclosure offers investors genuine and accurate insights into a company's financial performance. This helps investors make well-informed investment decisions based on a company's financial statements, performance, and forecasts.

**Enhanced Investor Confidence.** Maintaining transparent communication with investors boosts their confidence. When companies provide clear and timely information, investors feel more secure in their investments, reducing concerns about uncertainties and improving market transparency.

**Market Efficiency.** Access to comprehensive information empowers investors to predict market trends more accurately, enhancing market efficiency and effectiveness.

In conclusion, both the short-selling mechanism and information disclosure are integral to financial markets. Short selling allows for diverse investment strategies and market stability, while information disclosure ensures investors have the information needed for informed decisions, thereby contributing to market transparency and efficiency. These mechanisms jointly support the healthy development of

financial markets.

### 3. Luckin Coffee Case Study

#### 3.1. Introduction to Luckin Coffee

Luckin Coffee, a Chinese coffee chain established in 2018 with over 10,000 outlets, aimed to provide affordable and high-quality coffee to its customers. However, what began as a promising venture turned into a massive fraud. In January 2020, renowned short-selling firm Muddy Waters received an anonymous 89-page report accusing Luckin Coffee of data falsification. While the company initially denied these allegations on February 3, the truth emerged on April 4 when it admitted to fabricating sales figures of 2.2 billion yuan. Consequently, its stock price plummeted by 85%, closing at \$5.38.

The China Securities Regulatory Commission strongly condemned Luckin Coffee for its financial fraud. In June 2020, the company announced its suspension of trading on Nasdaq and began the delisting process. An inspection by the Ministry of Finance later revealed that Luckin Coffee inflated its revenue by 2.246 billion yuan through fictitious voucher transactions from April to December 2019.

In September, the State Administration for Market Regulation and market supervision departments in Shanghai and Beijing imposed administrative penalties on the company. In December, the U.S. Securities and Exchange Commission (SEC) announced a settlement, requiring Luckin Coffee to pay a fine of \$180 million (approximately 1.177 billion yuan) in response to various charges. This case serves as a cautionary tale of a promising company's fall from grace due to fraudulent practices. [1-3]

#### 3.2. Reasons for Financial Fraud at Luckin Coffee

##### 3.2.1. Market Positioning Misalignment.

Luckin Coffee's CEO believed there was strong demand for caffeine among Chinese youth. However, the market for caffeine in China was not limited to coffee, as tea held a more significant cultural importance with thousands of years of history. Coffee had a relatively small audience and a narrow market in China, leading to slow growth. Despite introducing products like "Xiaolu Tea," they couldn't compete with Starbucks' Frappuccino's. Luckin Coffee lacked the ability to innovate and ended up copying other brands, resulting in weak market positioning.

##### 3.2.2. Cost Control Issues.

The company priced its products too low, causing high costs and poor profitability. Within three years of its establishment in 2017, Luckin Coffee expanded to over 4,500 stores, serving over 40 million customers. This rapid expansion strained their cash flow. To attract a large volume of transactions, the company heavily relied on discounts, buy-one-get-one-free promotions, and incentives. However, these strategies also incurred substantial costs, including high store counts, low prices, rent, wages, and management challenges. While they attracted customers and generated high revenue, the company operated at a daily loss due to excessive expansion, low prices, and high operating expenses.

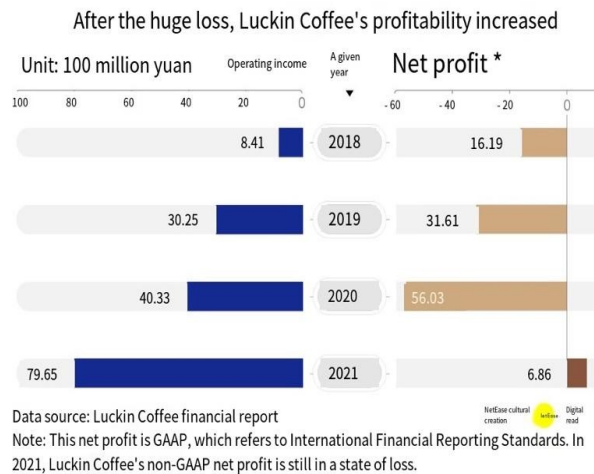


Figure 1. LK Financial Report

In 2019, Luckin Coffee reported a net revenue of 3.0249 billion yuan, marking a substantial 259.8% increase from the previous year's 840.7 million yuan. However, the company's operating expenses in 2019 surged to 6.237 billion yuan, more than doubling the 2.4387 billion yuan in 2018. Consequently, Luckin Coffee incurred an operating loss of 3.212 billion yuan in 2019.

According to the Muddy Waters report, at the store level, Luckin Coffee's gross profit of 50,600 yuan was insufficient to cover operating costs of 61,100 yuan, along with a delivery subsidy of 7,800 yuan. This resulted in each Luckin Coffee store experiencing a monthly operating loss of 18,300 yuan. Surprisingly, Luckin Coffee did not implement effective cost-reduction measures, such as depreciation, which meant that it would never be able to recover its initial investment due to persistently high fixed costs associated with store openings.[4,5]

##### 3.2.3. Ethical Factors.

One of the main reasons for the ethical issues at Luckin Coffee was the lack of responsibility awareness among the management. In a short period, Luckin Coffee went public and became one of the fastest delisted companies. Management's negligence played a significant role in this downfall. Almost half of Luckin Coffee's equity had been cashed out, amounting to \$2.5 billion. Such a large amount might have led to a negative feedback loop, causing stock prices to continue to decline. When the value of pledged stocks falls, lending institutions demand more cash and collateral to cover the initial amount. If the pledger's financial situation deteriorates, lending institutions will sell the stocks to recover losses, further driving down stock prices and increasing demand for more collateral, trapping the company in a vicious cycle.

### 4. Comprehensive Analysis of Luckin Coffee's Short-Selling Case

#### 4.1. Emergence of Short-Selling in Luckin Coffee and Market Response

Short selling is based on the concept of "selling high and buying low." Short-selling institutions investigate their chosen targets extensively, gathering negative information. They then borrow the company's stock from brokers and sell it, often releasing adverse information to drive down the stock price. Afterward, they repurchase the same quantity of stock at a lower price and return it to the broker, making a

profit from the price difference. This practice raises concerns about conflicts of interest.[6]

In the case of Luckin Coffee, Muddy Waters aimed to profit by attacking the company's stock price. When Muddy Waters published its short report, Luckin Coffee's stock price dropped by over 20% during intraday trading. On April 2nd, Luckin Coffee's stock experienced an 81.6% plunge, leading to six trading halts, and closing at \$6.4 per share, causing a loss of nearly \$5 billion in market capitalization. The following day, before the market opened, Luckin Coffee's stock continued to decline by over 20%. If Muddy Waters borrowed stocks before short-selling and repurchased them

afterward, they could have made substantial profits, potentially several times their initial investment.

## 4.2. Selection of Short-Selling Targets

### 4.2.1. Financial Opacity

A company's financial data is the best reflection of its day-to-day operations, and the stability and profitability of financial data can effectively depict a company's situation. Short-selling institutions often pay extra attention to the financial data of the target company. Any anomalies are immediately documented as evidence for short selling.

Luckin Coffee (LK)				
Main index	Profit statement	Balance sheet	Cash flow statement	
Reporting period	On a year-on-year basis	2019 Third quarter report	2019 China Daily	
Operating income		2.808 billion	1.315 billion	
Other income		121 million	72,255.40 million	
Gross operating income		2.929 billion	1.388 billion	
Operating cost		1.463 billion	742 million	
Gross operating profit		1.466 billion	646 million	
Marketing, selling and administrative expenses		2.082 billion	1.169 billion	

Figure 2. LK Income Statement

Luckin Coffee opened its doors in October 2017 and experienced rapid growth in 2018, including significant expansion and fundraising. Consequently, in 2018, various aspects such as cash, inventory, total assets, total liabilities, and shareholders' equity saw substantial growth. This is relatively understandable.

However, upon analyzing the quarterly reports for 2019, as shown in the graph above, it becomes apparent that Luckin Coffee's total revenue and total costs exhibited a linear increase. This suggests that the company encountered significant operational issues in 2019.

### Cash Flow

Currency in CNY. All numbers in thousands

Breakdown	TTM	12/31/2022	12/31/2021	12/31/2020	12/31/2019
> Operating Cash Flow	984,740	19,818	123,447	-2,376,832	-2,166,970
> Investing Cash Flow	-1,241,048	-798,046	337	-1,712,333	-1,815,890
> Financing Cash Flow	-716,701	-2,276,260	1,514,660	4,029,070	7,240,746
> End Cash Position	4,048,387	3,577,919	6,555,274	4,939,045	4,981,429
Income Tax Paid Supplemental Data	-	68,802	-	0	0
Interest Paid Supplemental Data	-	34,148	0	15,171	33,040
Capital Expenditure	-	-801,020	-173,217	-822,333	-1,614,239
Issuance of Capital Stock	-	63,380	1,514,660	2,876,811	5,608,250
Issuance of Debt	-	0	0	3,168,611	466,716
Repayment of Debt	-	-2,339,640	0	-650,089	-287,759
Free Cash Flow	183,720	19,818	123,447	-3,199,165	-3,781,209

Figure 3. LK Cash flow Statement

The cash flow statement for Luckin Coffee reveals notable trends. From Q4 2018 to Q4 2019, the net cash flow from operating activities remained consistently negative, as did the net cash flow from investment activities. The only positive cash flow came from financing activities.

This suggests that Luckin Coffee was still in its early developmental stages and lacked a robust cash supply chain. In Q1 2019, the cash flow was -47,214 thousand RMB, but it

dramatically surged to 2,357,770 thousand RMB in Q2 2019, a significant increase of 1,884,03 thousand RMB. By September 30th, it had further risen to 2,882,920 thousand RMB.

These substantial fluctuations in the third and fourth quarters of 2019 raise doubts about the company's financial stability during that period. In contrast, Starbucks, an industry leader, consistently generated positive net cash flow

from operating activities, indicating healthy growth over time. This suggests that Starbucks was experiencing favorable

development, while Luckin Coffee faced financial challenges.

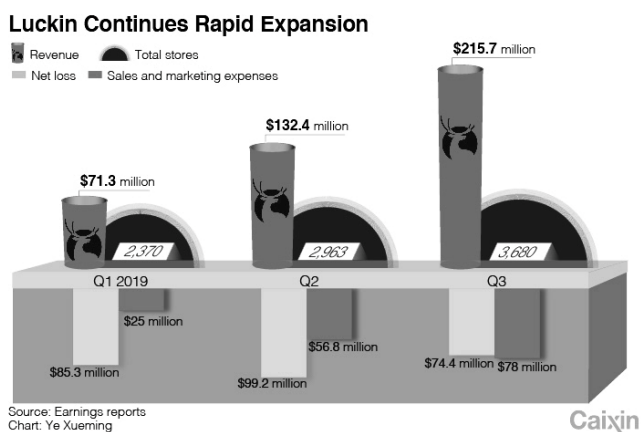


Figure 4. LK Revenue and Net Profit Situation

Luckin Coffee's operating profit margin remained consistently negative in each quarter of 2018 and 2019, as shown in the chart below. However, in the third quarter of 2019, there was a significant improvement in the operating margin. When comparing these quarters, it becomes evident that Luckin Coffee's total revenue suddenly increased

dramatically, indicating a rapid enhancement in its profitability. Nevertheless, this abrupt change in revenue over just a few months is somewhat unusual, and such substantial fluctuations in operating income within a short period could understandably raise suspicions among short-selling institutions.[3]

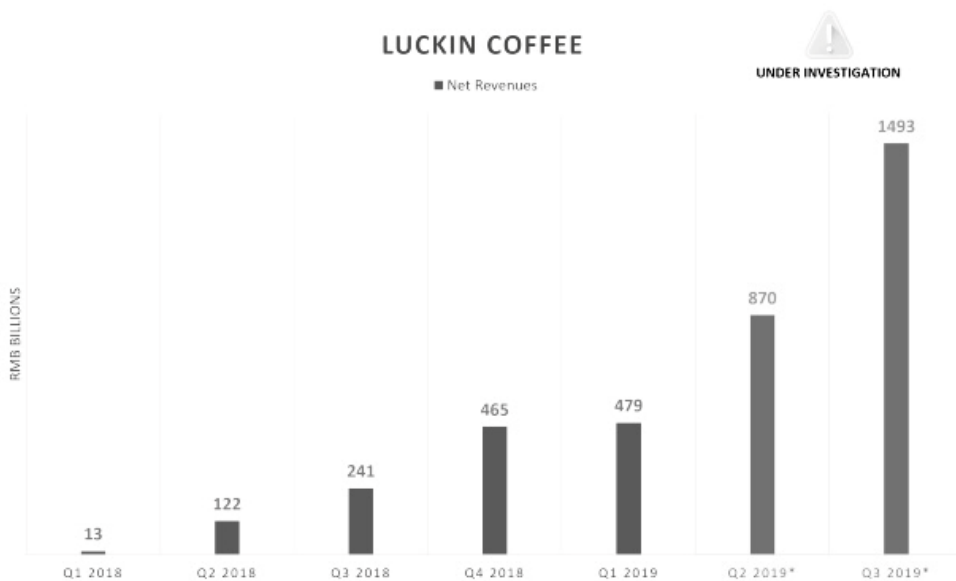


Figure 5. Profit Statement

#### 4.2.2. Analysis of Short-Selling Institutions' Investigative Methods

##### (1) Methods of Gathering Evidence

For short-selling institutions, obtaining internal data and information about a company can be a challenging task, sometimes requiring high-cost and high-risk methods. In the case of Luckin Coffee being targeted by Muddy Waters for short-selling, Muddy Waters mobilized 92 full-time employees and 1,418 part-time employees to conduct surveillance during 981 days across the company's stores. Researchers monitored individual stores throughout the day, recording data related to both delivery and in-store sales. In the third and fourth quarters of 2019, it was found that Luckin Coffee had exaggerated the daily sales of each store by over 69% and 88%, respectively. Company executives became aware that more and more investors and data companies were

tracking their QR codes as part of their due diligence. To mislead investors, they employed a deceptive tactic by manipulating receipts through order jumping. The investigation revealed significant fluctuations in online order quantities for the same store on the same day, ranging from 34 to 232 orders, with an average of 106 orders per day, equivalent to 72% of the average offline order volume.

##### (2) Data Analysis

According to Luckin Coffee's financial report for the third quarter of 2019, the retail price per item was 11.2 RMB, and the selling price per item was also 11.2 Chinese Yuan (CNY). However, the guidance price for the fourth quarter of 2019 was higher. Muddy Waters collected 25,843 receipts, which showed a net selling price of 9.97 Chinese Yuan (CNY), indicating a 12.3% inflation rate, with an error range between 9.87 and 10.07 Chinese Yuan (CNY). This significant

variance from the retail price disclosed by Luckin Coffee raised considerable concerns.

**Actual vs. Reported Price Comparison – Excluding Free Product**

Excluding free product	Report Case	25,843 Receipts	Inflation (RMB)	Inflation %
Net selling price (RMB)	12.24		10.83	1.41 13.0%
% of Net Listed Price	55%		46%	
Freshly Brewed Drinks (RMB)	12.29		10.94	1.35 12.3%
% of Net Listed Price	54%		45%	
Other products (RMB)	12.09		9.16	2.93 32.0%
% of Net Listed Price	57%		56%	

Source: Luckin Public Filings, 25,843 Luckin customer receipts, Coffee\_Detective calculation

**Figure 6. Actual Versus Reported Price Comparison**

Furthermore, CTR pointed out that Luckin Coffee was the largest advertiser across all tracked media channels, including traditional marketing, television, radio, and out-of-

home advertising. In May 2019, Luckin allocated 83% of its marketing budget to the LCD network, 12% to digital billboard frames, and the remaining 5% to cinema networks.

For the easier use of investors, we draw out the ranking, year-on-year and month-on-month growth of Luckin’s spending ever reported in CTR reports.

LK's spending ranking	18/01	18/02	18/03	18/04	18/05	18/06	18/07	18/08	18/09	18/10	18/11	18/12	19/01	19/02	19/03	19/04	19/05	19/06	19/07	Fraud Started			
LCD Display	10+	NA	13	6	7	11	4	4	6	6	8	NA	10+	20+	12	18	1	6	6	10+	NA	10+	10+
YY Growth															18%	-62%	164%	137%	4%				
MM Growth				111%	2%		133%	13%		-26%	-16%						614%		2%				
Poster/Digital Frame	10+	NA	NA	42	4	20	5	4	5	6	5	NA	10+	20+	4	16	1	3	4	10+	NA	10+	10+
YY Growth															31%	152%	16%	281%	16%				
MM Growth					578%		323%	12%		-24%	-8%						211%		28%				
Movie theater	10+	NA	NA	10+	10+	NA	10+	10+	10+	10+	10+	NA	10+	20+	20+	20+	14	4	1	3	NA	10+	10+
YY Growth																	-12%	389%					
MM Growth																			48%				-56%

Source: CTR Market Research

**So where did the money go? Clues might be found from the similar amounts of overstated store-level profit and advertising expenses.**

**Figure 7. Digital Marketing Budget**

However, Luckin Coffee's budget for digital billboard advertising saw a rapid decline in June and July 2019, to the extent that it dropped out of the top 10 in budget allocation. Approximately 336 million yuan in advertising expenses disappeared during this period. Muddy Waters conducted an analysis of the available information and found that Luckin Coffee's third-quarter profit of 397 million yuan was like the 336 million yuan spent on advertising expenses. This raised suspicions that Luckin Coffee may have shifted exaggerated advertising costs into marketing expenses, creating a false impression of profitability.

**(3)Taxation Factors**

In the domestic market, the value-added tax rate for freshly brewed products or delivery is 6%, while other products are subject to a 13% tax rate. Muddy Waters used value-added tax invoices to calculate a blended value-added tax rate and compared it with the company's financial reports. The results of this calculation showed significant discrepancies between the actual outcomes and the disclosures in the financial reports, further raising suspicions of fraudulent reporting in Luckin Coffee's financial statements.[7]

**5. Economic Consequences Analysis**

When it comes to the unreliability of information disclosure, the economic consequences are of paramount importance and far-reaching. The opaqueness of information disclosure not only challenges investor activity but also

seriously threatens market stability and predictability. Below are the economic consequences I have identified as resulting from the unreliability of information disclosure:

**5.1. Eroding Investor Confidence and Market Turbulence**

The unreliability of information disclosure directly damages investor confidence in the true state of a company, leading to investor doubts and uncertainty. In such circumstances, investors lack a reliable basis for making investment decisions and may opt for conservative strategies or even withdraw from the market. This chain reaction can lead to market turbulence, with significant increases in stock price volatility.[8]

**5.2. Reduced Market Liquidity**

Investor mistrust of information leads them to be more cautious about market behavior, resulting in reduced trading frequency. This decreased market liquidity can make it challenging for buying and selling parties to reach consensus, slowing down the flow of funds within the market. As a result, overall market activity is forced to decline.

**5.3. Increased Corporate Financing Costs**

Under circumstances of unreliable information disclosure, investors may harbor doubts about a company's future performance, demanding higher returns to compensate for the

perceived risk when providing financing. Companies may end up paying higher interest rates or equity costs when raising capital, thereby increasing the burden of financing, and further affecting the company's growth.

#### **5.4. Strengthened Investor Protection Mechanisms**

The unreliability of information disclosure can trigger regulatory authorities to place greater emphasis on a company's disclosure practices safeguarding investor rights. This may lead to heightened regulatory oversight, the development and enhancement of investor protection laws and regulations, and an increase in market regulation levels to ensure the protection of investor interests.

#### **5.5. Distortion of the Economic Ecosystem**

The unreliability of information disclosure disrupts the fundamental rules of the market, distorting the economic ecosystem within it. The market's information transmission mechanisms become less transparent, leading investors to doubt the normal functioning of the market, and the market's fundamental principles become undermined.

#### **5.6. Impact in the Luckin Coffee Case:**

The unreliability of information disclosure during the Luckin Coffee fraud case directly triggered market instability. Investor confidence was eroded, leading to a sharp decline in stock prices and a significant loss of market capitalization. Investors who had bought substantial amounts of Luckin Coffee stocks prior to the revelation of financial fraud suffered massive losses as they were caught off guard by the sudden short-selling actions of Muddy Waters.

Furthermore, this event raised concerns in the market about the authenticity of information disclosure by other companies, contributing to an overall sense of unease.

In summary, the unreliability of information disclosure can result in various economic consequences, including shaken investor confidence, market turbulence, and increased financing costs for companies. These effects continue to impact market stability and investor trust, underscoring the importance of transparent and truthful information disclosure for maintaining a healthy market.

## **6. Conclusion and Future Outlook**

### **6.1. Conclusion**

This paper has delved into the profound economic consequences of information disclosure unreliability, using the Luckin Coffee case as a prime example. It has provided an intricate analysis of how this phenomenon disrupts market stability and erodes investor confidence. By examining information disclosure unreliability from various angles, we have gained a deep understanding of its complex and multifaceted impacts. In conclusion:

First, the Luckin Coffee case vividly illustrates how information disclosure unreliability affects markets and investors. Transparent and accurate information disclosure is indispensable for maintaining the health of today's financial markets. Sound information disclosure enhances investor confidence and increases market liquidity.

Second, the accuracy of information disclosure is closely linked to a company's financing costs, the level of investor protection mechanisms, and the overall economic ecosystem.

Inaccurate information disclosure can worsen these conditions.

Third, looking at the aftermath of Luckin Coffee being targeted by Muddy Waters' short-selling, it is evident that short-selling mechanisms can indeed serve as effective external governance for companies. They can effectively uncover fraudulent financial practices and significantly improve the truthfulness and accuracy of information disclosure in the later stages.

Therefore, the standpoint of this paper is that information disclosure can directly influence short-selling decisions, and conversely, short-selling mechanisms can expose the quality of information disclosure. This serves as a form of supervision to enhance market transparency and reduce investment risks.

### **6.2. Future Prospects**

In the age of information, the transparency and authenticity of information disclosure are of paramount importance. Although China's capital market is still evolving, its legal framework is not yet fully developed, and certain inherent shortcomings in short-selling mechanisms exist, these factors can all impact market stability and risk. To safeguard the normal functioning of the market and protect the rights of investors, it is imperative to maintain the truthfulness of information disclosure. Providing investors with a reliable market environment and creating stable economic value are essential objectives.

We firmly believe that only through continuous exploration and diligence can we identify and address issues in our market. There is no such thing as a perfect market from the outset. As China's capital market gradually matures, we anticipate that the value of information disclosure will become more accurate, and short-selling mechanisms will play a more significant role in our market.

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