



Capital market signals and corporate advertising strategies: An empirical analysis based on the synergistic relationship between stock price volatility and marketing capability

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ABSTRACT

This paper conducts an empirical analysis of the data from non-financial listed companies on China's A-share market between 2008 and 2023, exploring the impact of stock price volatility on corporate advertising strategies and examining the synergistic effects of corporate marketing capabilities and stock price volatility on these strategies. The study finds that stock price volatility significantly triggers changes in corporate advertising strategies, and there exists a synergy between marketing capabilities and stock price volatility in influencing these strategies. Within the context of stock price volatility's impact on advertising strategies, there is heterogeneity related to the market environment and policy conditions in different regions, particularly pronounced in the western region, where stock price volatility has a more pronounced effect on advertising strategies. Furthermore, loss-making companies are more inclined to adopt intensified advertising strategies during periods of stock price volatility to address market pressures and investor expectations arising from external signals.

1. Introduction

In modern capital markets, information fluctuates frequently, and how enterprises effectively respond to signals from the capital market has become an important topic in their strategic management (Xu et al., 2022). As a crucial tool for market communication, advertising strategies not only reflect a company's market positioning and brand orientation, but are also often used to stabilize market expectations and convey confidence (El-Menawy and El-Sayed, 2024). In a context of increasing market uncertainty, whether and how companies adjust their advertising strategies has become a vital window for observing corporate behavioral response mechanisms (Zhang & Liu, 2025).

Traditional research primarily focuses on the impact of advertising expenditure on corporate performance, such as brand value, sales growth, and market share (Nguyen-Viet, 2022). However, in recent years, studies have begun to concentrate on the dynamic relationship between capital markets and corporate market behavior, particularly the influence of external financial signals like stock price fluctuations on internal corporate decision-making processes (Friske et al., 2023). As a typical signal of market uncertainty, stock price fluctuations not only affect a company's financing environment and investment decisions, but may also prompt management to enhance advertising strategies to stabilize consumer confidence and investor expectations (Abedin et al., 2024).

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At the same time, a company's marketing capability is also regarded as an important endogenous condition for responding to market signals. Companies with high marketing capabilities typically possess stronger resource allocation abilities, more efficient information dissemination pathways, and more comprehensive brand management systems. Therefore, they are more likely to proactively adjust their advertising strategies during periods of heightened external uncertainty, thus playing a role in stabilizing expectations and guiding market sentiment (Kumbure et al., 2022). While prior studies link advertising to performance (Nguyen-Viet, 2022), few examine how real-time financial signals (e.g., stock volatility) dynamically reshape advertising tactics. This suggests that a company's advertising response to capital market signals is not passive, but rather a conscious strategic choice regulated by its internal capabilities (Liu et al., 2025). This study bridges capital market dynamics and marketing strategy by investigating how firms recalibrate advertising expenditures in response to stock volatility, moderated by internal capabilities.

This study uses data from China's A-share listed companies, employing a multi-period regression model and interaction term analysis to verify the above hypotheses, while enhancing the robustness of the research through endogenous control and heterogeneity analysis. The findings not only enrich the literature on corporate responses to capital market signals but also provide new empirical evidence for understanding how companies utilize advertising strategies for external communication and market stabilization in uncertain environments.

2. Literature review

2.1. The economic consequences of advertising strategies

Advertising, as a key tool for companies to communicate with external markets, has long been viewed as an important means to enhance brand recognition, improve consumer loyalty, and drive sales growth (Htun et al., 2023). Early studies primarily focused on the direct impact of advertising expenditure on business performance, finding that advertising spending can significantly improve a company's market share, brand value, and financial returns (Han et al., 2024). Furthermore, advertising strategies have been endowed with broader strategic functions, such as mitigating asymmetrical information in the market and enhancing competitive advantage (Al Amosh et al., 2023). Beyond economic outcomes, advertising serves as a strategic signal to mitigate information asymmetry during market uncertainty (Alao et al., 2024).

As research has progressed, scholars have begun to recognize that advertising behavior not only serves a market-oriented function but may also possess financial-oriented attributes. This is particularly relevant during times of heightened capital market volatility or when companies face reputational risks; advertising may be utilized as a tool to stabilize expectations and restore market confidence (Alao et al., 2024). This provides a new perspective on the role of advertising strategies in capital markets.

2.2. Capital market signals and corporate behavioral responses

Price fluctuations in capital markets are regarded as an important carrier of information, reflecting investors' perceptions and expectations regarding a company's future prospects (Sun et al., 2023). An increase in stock price volatility usually signifies higher uncertainty in the market concerning a company's future operations, which may place greater pressure on management for information disclosure and expectation stabilization (Basuony et al., 2022).

Existing research has indicated that companies respond to capital market signals through various non-financial means, including accelerating innovation, enhancing social responsibility efforts, and even adjusting media communication strategies (Shahid et al., 2024). In this context, advertising strategies, as a highly controllable external communication tool, have garnered increasing attention from scholars regarding their dynamic adjustment behavior in response to capital market fluctuations (Li et al., 2023).

2.3. Marketing capability and strategic behavioral moderation

A company's marketing capability is regarded as an essential component of its endogenous competitive advantage, primarily manifested in its abilities to integrate brand resources, respond efficiently to market demands, and manage communication content (Jia et al., 2023). Marketing capability not only determines the efficiency of a company's advertising strategy but also influences its flexibility and proactiveness in making strategic adjustments in uncertain environments (Rath et al., 2024). Marketing capability enables firms to decode market signals and execute timely advertising adjustments (Rath et al., 2024), suggesting its potential synergy with stock volatility.

Existing literature has found that when faced with macroeconomic shocks or significant industry events, firms with strong marketing capabilities can more swiftly adjust their market response strategies, thereby mitigating the negative impacts of external adverse shocks on their operations (Corrado et al., 2022). Such studies provide an important theoretical foundation for understanding how firms adjust their advertising strategies under the pressures of capital market signals.

3. Theoretical hypotheses

In capital markets dominated by information asymmetry and market sentiment, corporate management often needs to proactively respond to the external pressures brought about by stock price volatility (Rajindra, 2024). Stock price volatility, as an important financial signal reflecting market uncertainty, can significantly affect investors' expectations and the stability of a company's reputation. In this context, firms may reinforce their advertising strategies to stabilize public sentiment, maintain brand image, and bolster

market confidence.

On one hand, from the perspective of signaling theory, firms facing higher market volatility are more inclined to release positive signals in ways that are highly visible externally. As one of the most commonly used external communication tools, advertising possesses high controllability and immediate feedback, which helps shape positive external market expectations regarding the firm's operational status (Zhang & Berhe, 2022). Therefore, firms may choose to strengthen their advertising strategies during periods of significant stock price fluctuations as a means of responding to uncertainty. Thus, this paper proposes the following hypothesis.

H1. The higher the stock price volatility, the more likely firms are to adopt a strengthened advertising strategy.

There are differences in the ability of enterprises to respond to external market signals, among which marketing capability is an important endogenous resource determining the market response behavior of enterprises (Li et al., 2025). Enterprises with strong marketing capabilities typically have more sophisticated information capture mechanisms and more efficient market communication systems, enabling them to quickly identify the market signals conveyed by stock price fluctuations in the face of uncertainty in the capital market. On this basis, they can proactively optimize their advertising strategies, including adjusting the content, rhythm, and media mix (Lee et al., 2024). Therefore, the marketing capability of enterprises not only influences their advertising strategies but, more critically, when it interacts with stock price fluctuations, can generate significant synergistic effects, further encouraging enterprises to enhance advertising behavior. Volatility triggers signaling needs (Connelly et al., 2011), while marketing capability enables resource reallocation (Barney, 1991), creating synergy. This leads to the following hypothesis.

H2. There is a significant synergistic effect between stock price volatility and enterprise marketing capability, which can significantly enhance the intensity of advertising strategies.

From a regional perspective, there are significant differences among different regions in China regarding capital market maturity, policy transparency, and resource acquisition capabilities for enterprises. These differences in institutional and economic environments may influence the sensitivity of enterprises to stock market fluctuation signals and their adjustments to advertising strategies (Sutaguna et al., 2023). Therefore, it is reasonable to assert that the impact of stock price fluctuations on advertising strategies is not consistent across different regions and exhibits regional heterogeneity. Regional disparities in financial market development (e.g., weaker investor protection in Western China) amplify firms' reliance on advertising to mitigate information asymmetry. Based on this, the following hypothesis is proposed.

H3. The impact of stock price volatility on advertising strategies exhibits regional heterogeneity.

The financial condition of enterprises may also influence their market behavior. For enterprises that are in a loss-making situation, the negative signals conveyed by stock price fluctuations may be more acute, with management facing stronger external pressure to restore market confidence, thus making them more likely to strengthen advertising efforts to convey positive expectations. Loss-making firms exhibit risk-seeking behavior (Kahneman & Tversky, 1979), using aggressive advertising to 'gamble' for recovery. In contrast, profitable enterprises experience less pressure for adjustment, making changes to their advertising strategies relatively moderate (Du et al., 2024). Therefore, loss-making enterprises may respond more strongly to stock price fluctuations, leading to the following hypothesis.

H4. The positive impact of stock price volatility on advertising intensity is stronger for loss-making firms than profitable ones.

4. Research design

4.1. Variable selection and treatment

This paper selects non-financial listed companies in China's A-share market from 2008 to 2023 as the research sample. The relevant data primarily comes from the CSMAR database and the annual reports of listed companies. To ensure the integrity and reliability of the data, the following treatments were conducted: ST and *ST companies, samples from the financial and insurance industries, and samples with missing key variables were excluded. Additionally, continuous variables were trimmed at the 1 % level of the upper and lower percentiles to mitigate the impact of extreme values on the regression results.

4.2. Model and variable construction

This paper establishes the following baseline regression model:

$$AD_{i,t} = \alpha_0 + \alpha_1 var_adj_{i,t} + \sum_{k=1}^n \alpha_k Controls_{i,t} + \omega_t + \varepsilon_{i,t} \quad (1)$$

In terms of variable construction, the core variables of this paper include the dependent variable, independent variable, moderating variable, and control variables, as detailed below:

- (1) Dependent Variable (Advertising Strategy Intensity, AD): Measured by the proportion of the company's advertising expenditure to its revenue for the year, reflecting whether the company has taken actions to strengthen its advertising strategy during a

specific period. This study uses the industry-adjusted ratio of selling expenses to operating revenue as a proxy for marketing capability based on the following considerations: Selling expenses include advertising, channel maintenance, and market research, directly reflecting the resources invested in brand communication and thus representing brand communication capability. Additionally, this indicator reflects the firm's responsiveness to market changes and willingness to allocate resources, embodying strategic responsiveness. After industry adjustment, it effectively removes industry differences, more accurately capturing proactive marketing behavior within the same competitive environment. Therefore, this indicator combines both the scale of marketing investment and strategic capability attributes, making it theoretically sound and empirically feasible as a proxy for marketing capability.

- (2) Independent Variable (Stock Price Volatility, *var_adj*): Defined as the variance of company *i*'s stock return in year *t*, calculated as the average variance of monthly stock returns from May of year *t* to April of year *t*+1. The monthly stock return variance is equal to the variance of the adjusted stock return for the month multiplied by the number of trading days in that month.
- (3) Control Variables: This paper incorporates several control variables to account for the potential impact of company characteristics on advertising strategy, specifically including: Return on Assets (ROA), which reflects the profitability of the company's overall assets; Return on Equity (ROE), which measures the company's ability to generate returns for its shareholders; Total Asset Turnover (ATO), which indicates the operational efficiency of the company's assets; Cash Flow from Operating Activities (Cashflow), representing the adequacy of cash flow during company operations; Revenue Growth Rate (Growth), which measures the company's growth potential; Board Size (Board), denoting the number of board members and reflecting the scale of the company's governance structure; Proportion of Independent Directors (Indep), which measures the level of independence in corporate governance; and Degree of Shareholder Checks and Balances (Balance), measured by the standard deviation of the shareholding ratios of the top five shareholders, reflecting the distribution and checks and balances among major shareholders. These variables comprehensively control for the influence of internal factors on advertising strategy from multiple dimensions, including profitability, growth, governance structure, and financial stability. A detailed definition can be found in [Table 1](#).

5. Empirical analysis

5.1. Descriptive statistics

[Table 2](#) presents the descriptive statistics of the main variables. From the perspective of the dependent variable, the average value of advertising strategy intensity (AD) is 0.0141, with a standard deviation of 0.0495 and a maximum value approaching 1. This indicates significant differences among various enterprises in their advertising strategies, with some companies adopting extremely aggressive advertising reinforcement behaviors in certain years. Regarding the core explanatory variable, the average of stock price volatility (*var_adj*) is 1.2189, with a standard deviation of 0.7743 and a maximum value reaching 7.7939, suggesting substantial variability in the level of capital market uncertainty faced by sample enterprises across different years. The means and standard deviations of control variables such as ROA, ROE, and ATO are generally within a reasonable range, indicating that the overall operational conditions and governance structures of the sample enterprises are representative and provide a solid data foundation for subsequent regression analysis.

Table 1
Variable description table.

Variable Name	Variable Symbol	Definition	Economic Significance
Advertising Strategy Intensity	AD	The proportion of corporate advertising expenditure to operating income	Measures the extent to which a company strengthens its advertising strategy
Stock Price Volatility	<i>var_adj</i>	The variance of stock price returns	Measures the intensity of uncertain signals conveyed by the capital market
Return on Total Assets	ROA	The ratio of net profit to total assets	Measures the efficiency of asset utilization by the company
Return on Equity	ROE	The ratio of net profit to shareholders' equity	Measures the company's ability to generate returns for its shareholders
Total Asset Turnover	ATO	The ratio of operating income to total assets	Measures the operational efficiency of the company's assets
Operating Cash Flow	Cashflow	The net cash flow generated from operating activities as a ratio of total assets	Reflects the ability of the company to generate cash flow from its operations
Company Growth	Growth	The growth rate of operating income	Measures the growth potential of the company during the sample period
Board Size	Board	The number of members in the board of directors	Reflects the scale of the company's governance structure
Proportion of Independent Directors	Indep	The ratio of independent directors to the total number of board members	Measures the level of independence in corporate governance
Degree of Shareholding Checks and Balances	Balance	The standard deviation of the shareholding ratio of the top five shareholders	Measures the checks and balances among internal shareholders of the company

Table 2
Descriptive statistics.

VarName	Obs	Mean	SD	Min	Median	Max
AD	34721	0.0141	0.0495	−0.0015	0.0008	0.9931
var_adj	34721	1.2189	0.7743	0.1682	1.0418	7.7939
ROA	34721	0.0356	0.0663	−0.3750	0.0352	0.2539
ROE	34721	0.0546	0.1379	−0.9616	0.0659	0.4188
ATO	34721	0.6429	0.4330	0.0546	0.5475	2.9180
Cashflow	34721	0.0478	0.0675	−0.2244	0.0462	0.2788
Growth	34721	0.1496	0.3823	−0.6535	0.0945	3.8082
Board	34721	2.1182	0.1976	1.6094	2.1972	2.7081
Indep	34721	0.3771	0.0543	0.2500	0.3636	0.6000
Balance	34721	0.0036	0.0029	0.0001	0.0028	0.0100

5.2. Baseline regression: The impact of stock price volatility on advertising strategy

Table 3 presents the basic regression results of the effect of stock price volatility on the strength of corporate advertising strategies. Column (1) only considers the core explanatory variable, stock price volatility (var_adj). The results indicate that the regression coefficient is positive and significant at the 1 % level, suggesting that firms are more inclined to adopt stronger advertising strategies in the face of higher capital market volatility, in order to mitigate the impact of external uncertainty on market confidence. Column (2) introduces several control variables; the coefficient for stock price volatility further increases, maintaining robust significance. This result supports the hypothesis H1 proposed in this paper.

5.3. Analysis of synergistic effects

To further investigate whether a company's marketing capability enhances the impact of stock price volatility on advertising strategies, this paper introduces an interaction term between stock price volatility and marketing capability based on the fundamental regression model, constructing the following synergistic effect model:

$$AD_{i,t} = \delta_0 + \delta_1 var_adj_{i,t} + \delta_2 CMkt_{i,t} + \delta_3 var_adj_{i,t} \times CMkt_{i,t} + \sum_{k=1}^n \delta_k Controls_{i,t} + \omega_t + \varepsilon_{i,t} \quad (2)$$

The marketing capability (CMkt) is measured by the industry-adjusted value of the proportion of sales expenses to operating income, reflecting the firm's resource allocation capability in market communication and channel development. Marketing capability amplifies volatility's impact through (1) rapid budget reallocation and (2) precise signal interpretation. Table 4 reports the regression results of the synergy effect. Column (1) presents the baseline model without interaction terms; the results indicate that stock price

Table 3
Basic regression.

VARIABLES	(1)	(2)
	AD	AD
var_adj	0.0012*** (2.6939)	0.0015*** (3.1601)
ROA		0.1170*** (8.8057)
ROE		−0.0419*** (−8.0768)
ATO		−0.0060*** (−14.1326)
Cashflow		0.0316*** (6.6890)
Growth		−0.0022*** (−2.6248)
Board		−0.0051*** (−2.8414)
Indep		−0.0111** (−2.0049)
Balance		0.0091 (0.1033)
Constant	0.0126*** (21.6186)	0.0280*** (5.1505)
N	34,721	34,721
year	YES	YES
Adj R ²	0.2005	0.2016

Table 4
Synergy effect test.

VARIABLES	(1)	(2)
	AD	AD
<i>var_adj</i>	0.0008* (1.6962)	0.0028 (1.3450)
<i>CMkt</i>	0.1905*** (18.9658)	0.1743*** (10.8484)
<i>var_adj</i> × <i>CMkt</i>		0.0137*** (3.1341)
<i>ROA</i>	0.1031*** (7.8482)	0.1038*** (7.9162)
<i>ROE</i>	−0.0341*** (−6.6937)	−0.0342*** (−6.7325)
<i>ATO</i>	0.0007 (1.2583)	0.0007 (1.2763)
<i>Cashflow</i>	0.0324*** (6.8494)	0.0323*** (6.8198)
<i>Growth</i>	−0.0014* (−1.6789)	−0.0013 (−1.6210)
<i>Board</i>	−0.0018 (−1.0101)	−0.0018 (−1.0272)
<i>Indep</i>	−0.0064 (−1.1597)	−0.0065 (−1.1811)
<i>Balance</i>	−0.1156 (−1.3270)	−0.1146 (−1.3145)
<i>Constant</i>	0.0450*** (8.2838)	0.0426*** (7.1622)
<i>N</i>	34,721	34,721
<i>year</i>	YES	YES
<i>Adj R²</i>	0.3026	0.3026

volatility (*var_adj*) significantly influences advertising strategy intensity (AD) at the 10 % level, suggesting that as market uncertainty increases, firms are more inclined to strengthen their advertising strategies in response to changes in the external environment. Meanwhile, the coefficient for marketing capability (*CMkt*) is significantly positive, indicating that firms with inherently strong marketing capabilities also adopt a more proactive overall advertising strategy.

Column (2) introduces the interaction term between stock price volatility and marketing capability (*var_adj* × *CMkt*) based on Column (1), in order to identify whether there is a synergy effect between the two. The regression results show that the coefficient of the interaction term is 0.0137 and is significant at the 1 % level, indicating a significant synergistic effect between stock price volatility and marketing capability. Specifically, when firms possess a higher marketing capability, signals of volatility from the capital market are more likely to motivate a reinforcement of advertising strategies, meaning that both factors jointly drive the firm's proactive adjustments in external communication behavior. This finding validates the hypothesis H2 proposed in this paper: the marketing capability of a firm can synergize with stock price volatility signals to jointly affect the formulation and strengthening of advertising strategies.

5.4. Endogeneity test

Although the previous regression results indicate a significant impact of stock price volatility on advertising strategies, if stock price fluctuations are influenced by corporate strategic behaviors (such as advertising expenditures), it may lead to endogeneity issues that affect the validity of causal identification. To mitigate this potential bias, this paper employs an instrumental variable approach to test for endogeneity.

Specifically, the paper selects the policy uncertainty index (*Policyuncertain*) of the city where the company is located as an

Table 5
Endogeneity test.

	(1)	(2)
	Phase one	Phase two
	<i>var_adj</i>	AD
<i>Policyuncertain</i>	0.3265*** (13.2915)	
<i>var_adj</i>		0.1362*** (14.5206)
<i>Control variable</i>	Yes	Yes
<i>LM value</i>	49.3512	
<i>Phase one F value</i>	72.7235	

instrumental variable for the stock price volatility (var adj). This index measures the level of uncertainty in economic and policy matters at the local government level, which can affect the stock price volatility of companies but is not directly associated with the companies' advertising strategy decisions, thus meeting the relevance and exogeneity requirements for instrumental variables.

Table 5 reports the results of the two-stage least squares (2SLS) regression. Column (1) presents the first-stage regression, where the results show that the policy uncertainty index has a significant positive impact on stock price volatility, with a coefficient of 0.3265, and the first-stage F-statistic is 72.7235, which is substantially higher than the conventional threshold of 10, indicating a strong correlation between the instrumental variable and the endogenous variable. Column (2) presents the second-stage regression, where the estimated coefficient of stock price volatility on advertising strategy is 0.1362, remaining significant at the 1 % level, indicating that after controlling for endogeneity, the positive impact of stock price volatility on corporate advertising strategies remains robust.

Additionally, the LM test statistic is 49.3512, which further supports the validity of the instrumental variable specification. Overall, the endogeneity test results enhance the causal identification capacity of this paper's conclusions, affirming that stock price fluctuations indeed drive adjustments in advertising strategies through the corporate market response mechanisms.

5.5. Robustness test

To further validate the robustness of the regression results presented earlier, this paper examines the issue from a temporal perspective by using lagged values of stock price volatility as alternative variables for regression analysis. This approach alleviates the impact of simultaneity bias and tests the stability of the main conclusions under different settings.

Table 6 reports the regression results using stock price volatility with different lag periods. Columns (1) to (4) introduce lagged stock price volatility variables (L1_var_adj, L2_var_adj, L3_var_adj, L4_var_adj) as core explanatory variables, corresponding to one to four lag periods, respectively. The results indicate that the coefficients of the lagged stock price volatility variables are positive in all four regression groups and significant at the 1 % level, suggesting that even when stock price volatility is viewed as a continuation of prior market conditions, its positive influence on current advertising strategies remains valid.

At the same time, the estimated results of the control variables in each column are consistent with those of the baseline regression. ROA and Cashflow continue to show a positive impact, while ROE and ATO exhibit negative effects. Governance structure variables (Board, Indep) also maintain consistent directions, with most being statistically significant. This further enhances the credibility of the empirical results.

In summary, the robustness tests indicate that the positive impact of stock price volatility on corporate advertising strategies remains robust across different temporal information points. The core findings of this paper are not due to model specification or variable selection but demonstrate strong consistency and explanatory power. This further reinforces the reliability of the conclusions and

Table 6
Robustness test.

VARIABLES	(1)	(2)	(3)	(4)
	AD	AD	AD	AD
L1_var_adj	0.0019*** (3.5760)			
L2_var_adj		0.0014*** (3.6448)		
L3_var_adj			0.0016*** (3.8973)	
L4_var_adj				0.0022*** (3.6361)
ROA	0.1213*** (8.2480)	0.1261*** (7.6348)	0.1259*** (7.6963)	0.1255*** (7.1326)
ROE	-0.0437*** (-7.9826)	-0.0456*** (-7.2005)	-0.0466*** (-7.0817)	-0.0472*** (-6.6310)
ATO	-0.0062*** (-13.5310)	-0.0067*** (-13.3258)	-0.0072*** (-13.5147)	-0.0080*** (-14.0677)
Cashflow	0.0395*** (7.5652)	0.0403*** (6.7102)	0.0403*** (6.5340)	0.0435*** (6.6781)
Growth	-0.0021** (-2.1521)	-0.0028*** (-2.7720)	-0.0032*** (-3.0948)	-0.0041*** (-3.8135)
Board	-0.0071*** (-3.6565)	-0.0092*** (-4.2118)	-0.0094*** (-4.2655)	-0.0097*** (-4.1650)
Indep	-0.0131** (-2.1850)	-0.0155** (-2.3477)	-0.0138** (-1.9684)	-0.0140* (-1.8734)
Balance	0.0781 (0.8162)	0.1288 (1.2365)	0.1800 (1.5771)	0.2058* (1.6618)
Constant	0.0334*** (5.5503)	0.0396*** (5.8824)	0.0411*** (5.9474)	0.0430*** (5.9382)
N	29,305	25,294	21,813	18,712
year	YES	YES	YES	YES
Adj R ²	0.3017	0.3017	0.3017	0.3018

provides a solid foundation for future research in related fields.

6. Heterogeneity analysis

6.1. Regional heterogeneity analysis

Considering the significant differences in marketization levels, economic foundations, and information environments across various regions in China, the area in which a company operates may influence its responsiveness to capital market signals and the logic behind its advertising strategy formulation. To further examine whether the synergistic effects identified in this study are consistent across different regions, the sample is divided into three areas—Eastern, Central, and Western—based on the company's registered location, and regression analyses are conducted accordingly, with results presented in [Table 7](#).

Column (1) displays the results for the Eastern region, where the coefficient for stock price volatility (var_adj) is 0.0010, significant at the 10 % level, indicating that companies in this region exhibit some responsiveness to capital market fluctuations. Column (2) presents the Central region sample, with a coefficient of 0.0025, demonstrating heightened significance and indicating that Central region firms are more sensitive in adjusting their advertising strategies in response to market signals. Column (3) represents the Western region, where the impact of stock price fluctuations on advertising strategy is most pronounced, with a coefficient reaching 0.0040 and significance exceeding the 1 % level, suggesting that in a context of relatively weak economic foundations and higher information asymmetry, enterprises are more inclined to rely on advertising strategies to respond to market fluctuations, thus validating hypothesis [H3](#).

6.2. Analysis of heterogeneity in loss situations

In order to further examine the heterogeneity of the impact of stock price fluctuations on advertising strategies, this paper divides the sample based on whether the companies are in a loss situation and conducts separate regression analyses for non-loss companies and loss companies, with results shown in [Table 8](#).

Column (1) presents the regression results for companies that are not in a loss situation, where the coefficient of stock price volatility (var_adj) is 0.0004, which does not reach the significance level. This indicates that in a relatively stable business environment, the impact of stock price fluctuations on advertising strategies is weak. Such companies may possess more stable channels to cope with market uncertainties, leading to a lower reliance on advertising strategies.

Column (2) presents the regression results for companies in a loss situation, where the coefficient of stock price volatility is 0.0023 and is significant at the 10 % level. This suggests that loss companies are more inclined to adopt reinforced advertising strategies in response to increased volatility in the capital market. This may stem from the greater external trust pressure and need for signaling during loss situations, hence a higher reliance on advertising strategies to transmit positive information and stabilize market sentiment.

In summary, the regression results support the hypothesis [H4](#) proposed in this paper, that the effect of stock price fluctuations on advertising strategies is more pronounced during periods of corporate losses. Companies facing greater financial pressure are more sensitive to market signals, and their advertising strategies are more easily driven by stock price fluctuations.

7. Conclusions and policy recommendations

This study empirically analyzes data from non-financial listed companies in China's A-shares from 2008 to 2023, exploring the impact of stock price volatility on corporate advertising strategies. It also examines the heterogeneous roles of marketing capabilities, regional characteristics, and financial status in this relationship. The results indicate that stock price volatility significantly prompts adjustments in corporate advertising strategies. Notably, in companies with strong marketing capabilities, the synergy between stock price volatility and marketing capabilities further drives the enhancement of advertising strategies. When facing uncertainties in the capital market, companies can stabilize market expectations and bolster the confidence of consumers and investors through more proactive advertising strategies. This study establishes advertising as a strategic response to capital market signals, extending signaling theory into marketing-finance interface research.

Moreover, the market environment in different regions significantly affects the relationship between stock price volatility and advertising strategies. Companies in eastern regions tend to respond to volatility through diversified market approaches, while those in central and western regions rely more on advertising strategies to cope with market uncertainties, highlighting the important role of regional characteristics in market responses.

Further analysis reveals that a company's financial status, particularly whether it is in a loss position, plays a critical role in adjusting advertising strategies. Loss-making companies exhibit a stronger tendency to adjust advertising strategies in response to stock price volatility, indicating their greater inclination to use advertising to repair brand image, stabilize market confidence, and alleviate external pressures. Firms with high marketing capability should leverage it to convert volatility into strategic advertising opportunities. Loss-making firms in volatile markets should prioritize advertising to rebuild stakeholder trust.

7.1. Policy recommendations

Companies should enhance their capacity to respond to market volatility, especially during significant stock price fluctuations, by

Table 7
Regional heterogeneity analysis.

VARIABLES	(1)	(2)	(3)
	AD	AD	AD
	Eastern region	Central region	Western region
<i>var_adj</i>	0.0010* (1.8376)	0.0025** (2.0966)	0.0040*** (2.6013)
<i>ROA</i>	0.0981*** (7.5610)	0.2245*** (6.1501)	0.0891 (1.4419)
<i>ROE</i>	−0.0343*** (−6.8647)	−0.0915*** (−5.1110)	−0.0183 (−1.0322)
<i>ATO</i>	−0.0067*** (−13.9341)	−0.0010 (−0.9285)	−0.0079*** (−5.2151)
<i>Cashflow</i>	0.0278*** (5.6482)	0.0322*** (2.6782)	0.0561** (2.5695)
<i>Growth</i>	−0.0019* (−1.8511)	−0.0025 (−1.2682)	−0.0049** (−2.0766)
<i>Board</i>	−0.0047** (−2.0565)	−0.0061** (−2.2519)	−0.0147** (−2.4894)
<i>Indep</i>	−0.0188*** (−2.7851)	0.0298** (2.2501)	−0.0356** (−2.4211)
<i>Balance</i>	−0.0463 (−0.4606)	0.2417 (1.1133)	0.0122 (0.0408)
<i>Constant</i>	0.0309*** (4.4322)	0.0098 (1.0759)	0.0586*** (3.6191)
<i>N</i>	24,760	5927	4034
<i>year</i>	YES	YES	YES
<i>Adj R²</i>	0.3014	0.3031	0.3026

Table 8
Analysis of heterogeneity in loss situations.

VARIABLES	(1)	(2)
	AD	AD
	Not in a state of loss	In a state of loss
<i>var_adj</i>	0.0004 (0.9628)	0.0023* (1.6932)
<i>ROA</i>	0.2809*** (20.3779)	−0.1455*** (−4.8517)
<i>ROE</i>	−0.0935*** (−13.8854)	0.0431*** (4.9125)
<i>ATO</i>	−0.0045*** (−10.9456)	−0.0118*** (−6.9913)
<i>Cashflow</i>	0.0224*** (5.2210)	−0.0407** (−2.1302)
<i>Growth</i>	−0.0023*** (−2.8280)	0.0012 (0.3344)
<i>Board</i>	−0.0030* (−1.6805)	0.0035 (0.5580)
<i>Indep</i>	−0.0131** (−2.3810)	0.0280 (1.4287)
<i>Balance</i>	−0.1646* (−1.8874)	0.0475 (0.1428)
<i>Constant</i>	0.0210*** (3.8441)	−0.0013 (−0.0681)
<i>N</i>	30,061	4,660
<i>year</i>	YES	YES
<i>Adj R²</i>	0.3035	0.3028

improving marketing capabilities and brand development and avoiding over-reliance on advertising to address short-term volatility. Meanwhile, the government can provide policy support to help enterprises in the central and western regions improve their market responsiveness, encouraging them to adopt more diverse strategic responses. For loss-making companies, it is essential to strengthen financial robustness and market transparency to prevent an over-reliance on advertising for short-term market recovery, and to promote improvements in core operational capabilities. Finally, regulatory bodies should pay attention to the impact of stock price volatility on corporate behavior, offering a stable market environment and guiding companies to adjust their advertising strategies within reasonable limits, achieving long-term brand development and enhanced market competitiveness.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The authors do not have permission to share data.

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