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Research on the impacts of China's existing short selling mechanism on the financial information transparency of Internet enterprises

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ABSTRACT
The current short selling mechanism in China is constrained by the system, thus failing to effectively short selling system from the perspective of internet enterprises and concludes that it inadequately enhances financial information transparency for such enterprises. Furthermore, compared to other types of businesses, internet enterprises are less affected by improvements in financial information transparency through the short selling mechanism, making them more resistant to being targeted for shorting. Therefore, this paper proposes a gradual establishment and enhancement of a new open short selling system in China, starting with enterprises exhibiting significant development potential and minimal susceptibility to the effects of the short selling mechanism. This approach would allow for a gradual implementation of the benefits offered by the short selling mechanism in China's capital market while providing ample time for industries heavily influenced by this new system to conduct self-assessment.

KEYWORDS
Short selling mechanism; Financial information transparency; Internet enterprises

1 Introduction

According to the China Internet Development Report [1], the widespread adoption of 5G technology and continuous development of database systems have propelled comprehensive growth in the internet industry. This has led to rapid iterations in large-scale technological models, supported by China's national digital initiatives, resulting in remarkable achievements and significant improvements in constructing a digital economy. On July 20, 2023, Ni, G. N. , an academician at the Chinese Academy of Engineering, emphasized during his speech titled "Developing Data Storage Industry to Seize Competitive Advantage" at the Seventh Financial Technology and Financial Security Conference that storage, computing, and network technologies are fundamental pillars for China's information industry development and strategic support towards becoming a scientific and technological powerhouse. [2] Recent efforts by China to drive digital transformation and foster tertiary industry growth demonstrate immense potential and opportunities within the internet sector.

The short selling is a stock trading strategy that involves buying low and selling high. The primary motivation behind short selling institutions' efforts to curb financial speculation lies in their pursuit of interest-driven gains, which are derived from the market value differentials of the targeted companies upon their sale. [3]In order to maximize their short selling returns, these institutions tend to prioritize "star enterprises" that enjoy high demand in the capital market, often overlooking less popular ones. [4] According to CNKI's statistics, the number of citations for literature related to internet development surpasses significantly those in the manufacturing industry, real estate industry, and retail industry. Founder Securities' data reveals that numerous industries are currently adopting internet technology applications. This means that the Internet industry receives higher attention compared to other industries, making it more susceptible to being targeted by short selling companies.

The sixth paragraph of Article 55 in China's Securities Law prohibits the public dissemination of evaluations, predictions, or investment recommendations regarding securities and issuers, as well as engaging in reverse securities trading with the intention to influence the price or trading volume of securities. Additionally, due to the Chinese regulatory restrictions on naked short selling, there are limited opportunities for shorting stocks, thereby hindering the significant role that short selling mechanisms can play in China's stock market. The research conducted by Chu J. and Fang J. X. revealed that the implementation of the short selling policy in 2010 deviated from the policymakers' initial objective of resolving the "one-sided market" dilemma through the introduction of the short selling mechanism. [5] Through Wang B.'s research, it has been discovered that the trust crisis faced by Chinese concept stocks due to Luckin Coffee's financial fraud not only highlights the inherent weaknesses of Chinese concept stocks themselves but also underscores the inadequacy of China's capital market regulatory framework in meeting the requirements for sustainable enterprise development. [6] The aforementioned studies collectively indicate that China's current short selling mechanism lacks effective supervision over the securities market, necessitating imminent reform. However, given the extensive development of short selling mechanisms in European and American securities markets over the years, they have played an irreplaceable role in those markets. In contrast, China's securities market is still at its nascent stage. If the short selling mechanism were to be fully implemented within a short timeframe, it could potentially result in significant turbulence within the stock market.

Liu W.Q. and Li J.Y. discovered that there is an inverse relationship between the level of media attention received by listed companies and the likelihood of future stock price crashes, particularly for companies with limited financial transparency. [7] Therefore, if the Internet industry takes the lead in embracing emerging concepts and gradually opens up to short selling, it can not only facilitate the gradual implementation of shorting mechanisms but also mitigate the severity of stock market turmoil.[8]

2 Theoretical analysis and formulation of research hypotheses

The failure case of shorting YY Live by Muddy Waters Company highlights the challenge faced by short-sellers in identifying technical issues affecting the main revenue streams of internet companies. However, due to the predominantly virtual nature of internet businesses, conducting on-the-spot investigations like Muddy Waters did with Ruixing Coffee becomes difficult, especially when there is a lack of understanding about Chinese culture and its influence on business operations. Consequently, this led to the failure of their short-selling strategy. The CSRC determined the false transactions of LeTV in the ten-year financial fraud incident through a comprehensive analysis of LeTV's financial information, confessions from involved parties, capital flow, and industrial and commercial information. This analysis revealed the challenges in identifying the core business of internet companies. [9] Based on the aforementioned analysis, this paper proposes research hypothesis 1:

Hypothesis 1 : the existing short selling system in China fails to enhance the financial information transparency of Internet enterprises.

Due to the ineffective role of China's existing shorting mechanism in the stock market and the persistent issue of information asymmetry in China's securities market. Therefore, the rise of companies such as Muddy Waters, which amassed their wealth through investments in aviation-related stocks. [10] However, it is precisely because of this situation that China should enhance its short selling mechanism. To prevent chaos and turbulence caused by a comprehensive opening, a gradual approach can be adopted, starting from shallow to deep and from small to large.[11] Based on the above analysis, this paper proposes research hypothesis 2:

Hypothesis 2 : The financial information transparency of Internet companies is comparatively less enhanced by the short sale mechanism when compared to other listed companies.

3 The design of the research

3.1 The model set with variable definitions

The specified regression model is presented in this paper[12-13]:

$$EA=a_0+a_1SS+a_2SECTOR+a_3ROA+a_4DBASSRT+a_5PE+a_6CR+a_7EPS+a_8EVA+b \quad (1)$$

$$ES=e_0+e_1SS+e_2SECTOR+e_3ROA+e_4DBASSRT+e_5PE+e_6CR+e_7EPS+e_8EVA+f \quad (2)$$

The interpreted variable (EA) represents the surplus radical degree (ES) for surplus smoothness.

The explanatory variables for the short selling mechanism, as defined by the "DID" model in this paper, SS are represented by dummy variables. If an enterprise is included in the short list, its corresponding variable value is 1 to indicate that it can be shorted; otherwise, it is 0.

The control variables consist of the following: SECTOR represents the nature of the industry; a dummy variable with a value of 1 indicates belonging to the Internet industry, otherwise it is 0. “ROA” refers to the net profit margin on total assets, calculated as net profit divided by total assets at the end of the period. DBASSRT denotes the asset-liability ratio, which equals total debt divided by total assets. PE stands for price-earnings ratio, calculated as (market value per share / share capital) divided by earnings per share (except for Zijin Mining Company where share capital is RMB0.1 per share). CR represents current ratio, defined as current assets divided by current liabilities. EPS signifies earnings per share, equal to net profit divided by total number of shares outstanding. EVA refers to economic value added and is computed as after-tax net operating income minus (weighted average cost of capital multiplied by average amount invested).

3.2 The source of data and the selected sample

The research was conducted in China using all A-share listed companies as the subject from 2010 to 2021. Data processing involved: 1. Excluding ST and *ST shares, financial companies, and missing data from the original sample. 2. Removing delisted stocks and suspended listings. The data processing was performed using Excel software. Financial data were sourced from the CSMAR database, while short position data were processed by Founder Securities and manually collected. Ultimately, we obtained a total of 22,899 (EA) observations and 18,727 (ES) observations.

4 Empirical analysis

4.1 Descriptive statistics

The descriptive statistics of the samples are presented in Table 1, encompassing a total of 3572 observed companies. The overall sample size is 22910 (EA) and 18727 (ES), respectively. Notably, there exist significant variations in financial information transparency between companies regarding surplus radical degree (EA) and surplus smoothness (ES). The mean value of the short selling mechanism (SS) is below 0.5, indicating that less than half of the companies engage in short selling activities. Furthermore, the sector value stands at only 0.0455, suggesting limited data availability for Internet companies.

Table 1 Descriptive statistics

Variables	N	MEAN	SD	MIN	MAX
EA	22,899	-0.152	0.192	-0.826	0.345
ES	18,727	3.931	6.054	0.134	39.07
SS	22,899	0.438	0.496	0	1
SECTOR	22,899	0.0455	0.208	0	1
ROA	22,899	0.0309	0.0611	-0.266	0.187
DBASSRT	22,899	0.476	0.205	0.0573	0.923
PE	22,899	83.69	182.3	-315.6	1,203
CR	22,829	2.077	2.173	0.276	14.77
EPS	22,899	0.370	0.639	-1.780	3.031
EVA	22,899	6.954e+07	9.630e+08	-3.656e+09	5.491e+09
Number of company	3,572				

4.2 Test of regression

The data indicate a positive correlation between industry nature (SECTOR) and short selling mechanism (SS) with earnings aggressiveness (EA) and earnings smoothness (ES), suggesting that the existing short selling system in China cannot mitigate earnings aggressiveness (EA) and earnings smoothness (ES), thereby failing to enhance financial information transparency of Internet enterprises. This finding is consistent with Hypothesis 1.

Table 2 presents the regression results of the Internet industry on financial information transparency under the short sale mechanism. In column 1, all samples demonstrate a significant influence of the shorting mechanism on surplus radical (EA) in the Internet industry, while in column 2, no significant impact is observed on surplus smoothness (ES). However, across all return samples in column 2, it is evident that the shorting mechanism significantly affects financial information transparency but does not exhibit any relative significance compared to other industries within the Internet sector. This aligns with our expectation stated in Hypothesis 2.

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

4.3 Robustness test

Considering that the sample size of companies eligible for short selling is insufficient to account for less than 50% of the total data, and that non-shortable companies have no impact on testing the extent to which financial information transparency of Internet companies is affected by the short sale mechanism compared to other listed firms, this study excludes these samples and conducts a retest in Table 3, revealing a significant positive effect in the SECTOR. Both hypotheses 1 and 2 are confirmed.

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 2 Test of regression

	EA	ES
SS	0.0149	2.6514***
	(0.59)	(3.00)
SECTOR	0.0426*	0.4746
	(1.83)	(0.61)
ROA	0.2189***	3.2279**
	(5.18)	(2.28)
DBASSRT	-0.1171***	2.3319***
	(-6.49)	(3.24)
PE	0.0000	0.0012***
	(0.08)	(4.71)
CR	0.0183***	0.1147*
	(16.00)	(1.71)
eps	0.0109**	0.6329***
	(2.39)	(2.73)
EVA	-0.0000**	0.0000
	(-2.24)	(0.04)
DATA1		
N	22829.0000	18671.0000
R2_A	0.0764	0.0100

Table 3 Robustness test

	EA	ES
SECTOR	0.0625**	2.0651*
	(2.34)	(1.88)
ROA	0.2166***	3.5462
	(3.37)	(1.58)
DBASSRT	-0.1152***	2.7854***
	(-4.14)	(2.82)
PE	-0.0000	0.0013***
	(-1.05)	(3.01)
CR	0.0207***	0.1166
	(10.91)	(1.16)
EPS	0.0169**	0.7700*
	(2.37)	(1.73)
EVA	-0.0000**	-0.0000
	(-2.53)	(-0.41)
DATA1		
N	9999.0000	8281.0000
R2_A	0.0816	0.0126

5 Conclusion

This paper studies the impact of China's current short selling system on the financial information transparency of the Internet industry from the perspective of Internet companies and the A-share short selling data of all listed companies. The findings indicate that: firstly, the existing short selling system fails to enhance the financial information transparency of Internet enterprises. This situation can be attributed to the imperfections in China's short selling system and the impact of media supervision on reducing transparency in Internet financial information. Secondly, compared to other industries, the influence of shorting mechanisms on improving financial information transparency is relatively lower for Internet enterprises, making it more challenging for them to be targeted for short-selling activities. This difficulty may stem from the fact that verifying business transactions of

Internet enterprises by external institutions is more complex than in other sectors. The securities market in China has introduced an open shorting system, which offers a novel perspective and substantial data support. Findings indicate that internet companies are comparatively less influenced by the short selling mechanism in enhancing financial information transparency compared to other industries. Consequently, it is recommended that China gradually opens up and enhances its short selling system, commencing with enterprises exhibiting high development potential and minimal susceptibility to the effects of this mechanism. This approach will not only enable the gradual implementation of the short selling mechanism within China's capital market but also allow affected industries sufficient time for self-reflection.

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