

Research on the Influence of Listed Companies' Strategy on Financing Cost

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Abstract. The strategy of companies is related to the survival and development of enterprises. Listed companies with different strategies have different business characteristics, and the difference will affect the comprehensive judgment of investors on the company, thus affecting the efficiency and cost of absorbing external funds. The development strategy disclosed in the annual report of listed companies is an important channel for external investors to understand strategy and analyze value of the company. This paper makes a textual analysis of the development strategy of listed companies, and explore the influence of it on the cost of equity financing. This paper studies the influence of text readability, text intonation and strategic differences of listed companies on the cost of equity financing, taking the Shanghai and Shenzhen A-share listed companies from 2015 to 2020 as samples. This paper studies the influence of listed companies' strategies on the cost of equity financing from the perspective of text analysis, which expands the channels for studying the strategic characteristics of companies, and provides some reference for listed companies to disclose their development strategies in the future.

Keywords: Listed company strategy; Financing costs; Text analysis.

1. Introduction

The rapid development of the economy has made the market economic environment and the operating environment of companies more and more complex. The complex environment leads to the intensification of competition, resulting in the company facing more and more business risks and financial risks. In the face of the severe and complex operating environment, the company wants to continue, long-term development, need to have sufficient funds, but only rely on internal financing cannot meet the needs of the company, based on this, more and more companies through the financing of the way to obtain external funds. China's listed companies do not follow the financing theory of "preferential financing" under the mature capital market system of the West, but prefer the way of equity financing. When making investment decisions, investors rely on the information disclosed by the company to predict the company's future operation and development, and to judge the risk of their investment and the required rate of return.

Corporate strategy is a holistic planning process in which a company determines its long-term goals and allocates resources to achieve them based on its internal and external environment as well as its own resources and strengths, etc. Miles and Snow [1] point out that the implementation of different strategies by a company will reflect different operating modes, organizational structures, and so on. When a listed company seeks equity financing, the company's operating characteristics will affect investors' comprehensive judgment of the company's various capabilities, thus affecting their investment decisions. If investors find that the company's operation is more risky, or due to insufficient disclosure of information by the company, exacerbating the information asymmetry between the company and investors, and investors are skeptical about the company's development prospects, all of these will increase the investment risk and decision-making cost of the investors, which will make the investors to seek for a higher rate of return, and for the company, which will also increase the cost of equity financing.

The annual report of listed companies can provide external investors with information on the company's finance, operating conditions, future development plans, etc., which is one of the important channels for the company to communicate with the outside world. In recent years, with the continuous

development of the economy, the gradual deepening of the capital market, and the development of computer processing technology, the company's financial data can no longer meet the needs of investors, and the text information is more concerned. Textual information disclosed by listed companies is an important channel to convey the company's operating conditions and strategic planning [2]. Management's analysis and discussion (MD&A) in the annual report provides historical information and future development information related to the company, among which the company's future development plan is forward-looking information, which is found to have high predictive value [3]. The "Growth Strategy" section of the Company's Future Development Plan is a paragraph that communicates the Company's strategy to users of the Annual Report and is not only forward-looking, but is also an important way for investors to understand the Company's strategy.

Based on the above background, this paper takes the textual characteristics and content of the development strategy information disclosed in the annual reports of listed companies as an entry point to explore the impact of listed companies' strategies on the cost of equity financing.

2. Literature review

2.1. Corporate Strategy Study

Corporate strategy concerns the future survival and development of enterprises. In recent years, understanding the characteristics of corporate strategy and the effects of strategy implementation has been a focus of academic and practical attention.

Currently, scholars mainly use databases, questionnaires, company financial data, and company text information to understand the characteristics of company strategies. Banker [4] et al. determine the competitive strategies of companies through PIMS database. Wang Fanlin [5] distributed questionnaires to 59 companies to collect information, and measured the informatization strategy of companies through the designed evaluation indexes of informatization strategy. Scholars have also constructed scales to assist questionnaires to measure the strategic orientation of companies, such as Gatignon [6], Zhou Fei et al. [7], and Su Chao [8], etc., which use questionnaires to measure the technological orientation, market orientation, and entrepreneurial orientation of companies by using scales, respectively. Some scholars use the company's financial indicators to construct a measure of discrete variables of corporate strategy, and judge the degree of aggressiveness of corporate strategy through six financial indicators [9, 10]; Ye Kangtao et al. [11] use six indicators, namely, advertising intensity, research and development intensity, capital intensity, renewal of plants and equipments, overhead efficiency, and financial leverage, to measure the degree of strategic differentiation of the enterprise and the change of the enterprise's strategy. Mei Nan [12] used Herfindahl Index (HI) to measure the degree of diversification when studying the effect of diversification on return on assets. Ding and Gen and Tao Dakun [13] use entropy index and Herfindahl index to measure the degree of diversification of enterprises; Li Sha et al. [14] believe that the use of financial indicators to measure the change of corporate strategy neglects the analysis of strategy formulation, and they use the cosine similarity between the MD&A text in the annual report and the previous year's version of this text to measure the degree of change of corporate strategy; Hu Nan et al. [15] calculate the ratio of the total number of words of the vocabulary for competitive strategy to the total number of words in the text of the annual report and used Word2Vec natural language processing to construct competitive strategy indicators in the Chinese scenario; Park [16] studied from the perspective of the company's patent text, using the company's patent text to generate an SAO structure and visualize it as a patent map to identify the company's specific strategic goals.

There has also been much research on the economic effects of different corporate strategies. Wang Huacheng et al. [17] constructed corporate strategy metrics to measure six different aspects of corporate strategy, and found that firms adopting offensive strategies are more likely to have overinvestment phenomenon, and executive power, corporate cash holding level can affect the significant relationship between the two; Zhao Huan [18] studied China's A-share listed companies, and found that China's listed companies have different degrees of financing constraints, and the

degree of aggressive corporate strategy is significantly positively correlated with financing constraints. Constraints, but institutional investors can reduce this relationship; Chu Youwei [19] examines the impact of strategy on financial asset allocation using data from non-financial listed companies, and the results show that firms adopting aggressive strategies have higher levels of financial asset allocation; Xu Jian et al. [20] find that a firm's strategy can affect cash distribution decisions.

Meanwhile, scholars have also conducted a lot of research on corporate strategy differences. Ma Yuan et al. [21] analyzed listed companies in Shenzhen and found that the greater the degree of strategy implemented by listed companies deviating from the conventional strategy of the industry, the more investors pay attention to the information of book net assets in their investment decisions; Carrie Che et al. [22] found that the greater the degree of strategic difference of listed companies in the manufacturing industry, the more pronounced asymmetry in the expression of the magnitude of the change of cost with the amount of business will be; Sheng Mingquan et al. [23] found through empirical analysis that the greater the degree of strategic difference of the company, it will slow down the speed of its capital structure adjustment speed; Luo Zhonglian et al. [24] found that strategic differentiation affects the agency conflict between management and shareholders, thus affecting accounting comparability; Hou Deshuai et al. [25] analyzed China's A-share listed companies, and found that the implementation of differentiated strategies by companies can affect the surplus management of real activities and reduce the risk of stock price collapse

2.2. Text message research

With the rapid development of the Internet, the total amount of information people obtain is increasing. Unstructured information occupies the vast majority of the total amount of information. As an important part of unstructured information, text information has high research value in the field of finance and accounting. In recent years, many scholars have conducted a lot of research on text information.

2.2.1. Text characterization studies

Textual tone is a hot area in the study of textual features. Fully grasping intonation plays an important role in understanding the meaning of text [26]. Lin Le and Xie Deren [27, 28] empirically found that the tone of the management in the performance presentation can predict the company's performance and influence Chinese investors; Zeng Qingsheng [29] et al. empirically studied the tone of annual reports of listed companies through text analysis, and found that there is tone management behavior, and the management manages or manipulates the tone of the annual report to achieve its own purpose; Miao Xia [30] applied machine learning models to analyze the sentiment of prospective textual information in annual reports, and found that media reports can enhance the value of management tone in predicting financial crises. Sentiment analysis, the study found that media reports can enhance the value of management tone in financial crisis prediction.

Text readability is used to measure the extent to which a text can be understood by the reader [31]. Jili et al. [32] processed four indicators (whether the social responsibility report has a color cover, average sentence length, number of pages, and number of charts and graphs) to obtain readability indicators, and empirically found that the management power and the readability of the social responsibility report are positively correlated; Yin'e Chen et al. [33] used three variables, namely length, average sentence length, and the density of specialized vocabulary, as indicators of the readability of board of director's reports, and explored the connection between the readability of the annual report and the institutional environment and the management power; Chen Xiao et al. used average sentence length and number of common words and common phrases to measure text readability, and found that borrowing texts can be understood. Chen Xiao et al [34]. used average sentence length and the number of commonly used words and phrases to measure text readability, and found that text readability in borrowing descriptions can play a signaling role and has information content; Wang Kemin [35] et al. designed three variables, namely density of backward connecting components, density of accounting terminology, and density of sub-commonly used words to

examine the complexity of textual information in annual reports, and found that textual information in annual reports is more complex in companies with poorer performance Lin Yong [36] et al. refer to the Fog index, and select the average number of single sentences and the proportion of difficult words as indicators to establish a text readability index suitable for Chinese.

2.2.2. Textual content studies

Currently, scholars' research on the content of accounting texts mainly centers on risk information and disclosure quality. Wang Xiongyuan et al. [37] quantify risk information disclosure by using the percentage of risk words appearing in the text, and find that the accuracy of analysts' prediction is significantly positively correlated with the frequency of risk information disclosure of the company; Liang Na et al. [38] construct a triple dimensional method of extracting corporate risk information, and obtain high-quality, informative and comprehensive risk information; Luo Jinhui et al. [39] empirically validate that listed companies' disclosure of annual reports of a longer length reduces information asymmetry between the company and investors and this reduction is more obvious for non-state-owned enterprises and enterprises audited by non-Big Four accounting firms. The information asymmetry between companies and investors is reduced, and this reduction is more obvious in non-state-owned enterprises and enterprises not audited by the Big Four accounting firms; Cheng, Xinsheng et al. [40] evaluate the disclosure of forward-looking information of listed companies in six aspects, such as strategic objectives, new products or new businesses, in order to measure the disclosure quality of the company's information; Cui, Di et al. [41] utilize the PEST analytical framework and Porter's Five Forces Model to combine the establishment of the Nine Forces Model classification framework for the annual reports of listed companies. Model classification framework to analyze the information disclosure of listed companies' annual reports.

2.3. Study of the Cost of Equity Financing

Chinese listed companies prefer equity financing to obtain external funds, but the price they pay is relatively high, so it is crucial to explore the influencing factors of the cost of equity financing. According to the current research, the influencing factors can be categorized into two groups, internal factors and external factors.

Company size, gearing ratio, book-to-market ratio and so on can affect the cost of equity financing of the company. Gebhardt [42] comprehensively examines a variety of factors, and the empirical research results show that: the book-to-market ratio can explain the differences in the cost of capital of the enterprise, and the correlation relationship has a high degree of stability; Christine et al. [43] found that the cost of equity financing of the company with a large scale is low, and the relationship is significant. Scholars measure the quality of information disclosure in different ways and find that the quality of information disclosure of listed companies in China can have a positive impact on the cost of equity financing [44], but this impact has a lagging effect [45]; In addition, Luo Zhonglian et al. [46] analyze the listed companies in China's Shanghai and Shenzhen markets and find that the comparability of accounting information can significantly reduce the cost of equity financing, and the agency cost can regulate this lowering effect.

The external influencing factors are mainly by industry, the degree of legal protection of investors, media reports and so on. By studying the cost of equity financing in different industries, it is found that there are significant differences in the cost of equity financing among enterprises in different industries [47], and the fundamental reason is that the capital-intensity and capital-labor ratio of the industry affect the cost of capital of the company [48]; Jiang Fuxiu et al. [49] constructed an index of investor interest protection, and found that investor protection of listed companies in China is negatively correlated with the cost of equity financing; Xiao Hao et al. [50] found that the government intervention affects the cost of equity financing of state-owned enterprises; Zhao Ya Na et al. Xiao Hao et al. [52] find that government intervention affects the cost of equity financing of state-owned enterprises; Zhao Yana et al. [51] empirically show that the policy burden borne by state-owned enterprises due to government regulation and intervention increases the cost of equity financing; Zhao Yujie and Li Hui et al. [53] empirically test the impact of media reports and find that media reports

and the tone of the reports can affect the cost of equity financing and refinancing cost of listed companies.

2.4. Literature review

By reviewing previous studies, it can be found that scholars have conducted a large number of empirical and theoretical studies on corporate strategy. For the research on corporate strategy, it mainly uses financial data to measure the characteristics of corporate strategy; the research using text analysis is also mostly about the type of strategic preference, the degree of strategic difference, and so on, and few studies comprehensively analyze the readability of corporate strategy text, text tone, and the degree of strategic difference. Therefore, this paper explores the impact of listed companies' strategies on the cost of equity financing by examining the textual characteristics and content of the development strategy information disclosed in the annual reports of listed companies.

3. Theoretical analysis and research hypothesis

Corporate strategy determines a firm's future development plans, and previous studies have shown that corporate strategy characteristics affect a firm's cost of equity financing by influencing the cost as well as the efficiency of investors' investment decisions. The development strategy in the MD&A of a company's annual report is an important way for management to communicate the company's strategy and for investors to understand the company's strategy [54]. On the one hand, management, as the party with information advantage, discloses strategic information that contains its knowledge of the company's future situation, which can help investors understand more about the company's development; on the other hand, when disclosing the relevant information, management, out of different motives, will make the disclosed information show different textual characteristics by using different forms of linguistic expression. Some studies have shown that the textual characteristics of MD&A (readability [57], tone [56], etc.) in the company's annual report are associated with the company's future development; at the same time, the company's differentiation strategy enhances competitiveness while increasing business risks, both of which will have an impact on investors' decision-making.

3.1. Assumptions on the correlation between the readability of strategic texts and the cost of equity financing

Textual information disclosed by listed companies about the company's operating conditions often implies future company development [27]. Investors do not participate in the management of the company's daily business activities, resulting in serious information asymmetry between investors and the company, and they are in an information disadvantage. Investors want to understand the development and operation of the company only through the information disclosed by the company. Some studies have shown that when the company's performance is poor, the textual information disclosed by the company will be more ambiguous, which means that in order to meet the needs of their own development and attract sufficient funds, there are additional incentives for the company to blur the negative information disclosed by the company in an attempt to establish a positive image of the company in order to manipulate the opinions and decisions of investors. When the text of a company's disclosure is less readable and the information is more vague, the higher the likelihood that the company will engage in information manipulation.

The high readability of the text of the information disclosed by the company indicates that the content of its expression is easier to be understood or not easy to be misunderstood, which reduces the noise generated by the information, lowers the information processing cost of investors and improves the efficiency of their decision-making, and ultimately affects the cost of equity financing of the company; at the same time, the high readability of the text of the information disclosed by the company indicates that its disclosure of information is of high quality, which helps the investors to understand the operating situation of the company, and reduces the degree of information asymmetry

between the company and investors and the decision-making risk of investors, and finally reduce the company's cost of equity financing; the decline in the readability of the annual report will largely affect the analysts' forecasts, which may lead to a decline in the accuracy of their forecasts or produce different forecasts [57], thus affecting the comprehensive judgment of investors on the company, and adversely affecting the trading behavior of investors. Based on the above analysis, it can be found that the text readability of listed companies' development strategies can influence investors' investment decisions.

In this paper, text length (total number of characters) is used as a measure of text readability. Some scholars believe that the longer the text is, it will hinder readers from obtaining relevant information quickly, and at the same time, it will also produce information noise and increase the cost of information processing. Based on the above two reasons, this paper takes the text length as a reverse indicator to measure the readability of the text. Through the above analysis, the hypothesis is proposed: H1: Public company strategy text readability reduces the cost of equity financing.

3.2. Hypothesis on the correlation between the tone of strategic texts and the cost of equity financing

Tone of voice can affect the way and process by which information is understood. Existing research has found that management tone of voice has a certain information content, and Chinese investors are indeed affected by it. China is a high-context communication society, and in this culture people express emotions and convey information implicitly, which leads to ambiguity in our expressions of future events. When disclosing forward-looking information, the management of listed companies will disclose positive future developments more directly and clearly, while the negative information may be expressed in a vague and complicated manner, and what is more, taking advantage of the highly flexible nature of linguistic information, the management of listed companies will change linguistic expressions when disclosing forward-looking information, adopting a positive tone of voice to express the future development of the company, with the aim of conveying to investors a Positive image of the company, to show the company's core competitiveness, to meet the company's purpose of expanding financing; at the same time, language expression is difficult to regulate and subject to legal restrictions, and there is no rule to follow, compared to the financial report of the number of fraud, the text of the language manipulation of the violation of the cost is lower, in this case, the management of the language of the manipulation of the existence of a greater likelihood; some scholars have found that, when the performance of the company decline Some scholars have found that when the company's performance is declining, the management will be more inclined to use a positive, affirmative tone, in order to dispel investors' doubts about the company's future development, and when the company's performance is good, the financial data can fully show the company's future prospects, the management does not need to additionally adjust the language, to convey the company's positive outlook, so there is a tendency of "reporting good news but not reporting bad news" in the annual reports of listed companies in the MD&A. Therefore, there is a tendency of "reporting good news but not bad news" in MD&A of listed companies.[58] Besides, when quantitative disclosure is restricted, management can utilize textual information to disclose more information. Through the above analysis, it can be seen that there is a credibility problem in the tone of management disclosure text, based on this, the hypothesis is proposed:

H2: The tone of listed companies' strategy texts increases the cost of equity financing

3.3. Hypothesis on the correlation between the degree of strategic differentiation and the cost of equity financing

An industry in the continuous development process, its strategy mode will gradually return to the conventionalization, uniformity, the industry's conventional strategy is its development in the development of the continuous summary of historical experience, the formation of repeated experiments. The difference between the strategy chosen by each company and the conventionalized strategy of the industry in which it is located is called the degree of strategic difference. In most cases,

a company will adopt a conventionalized strategy, which not only can avoid a lot of risks, but also get the support of resources from various departments such as the government. However, the profit gained by the company by implementing the conventionalized strategy can at most be similar to the average level of the industry, so there are some companies that in order to enhance their competitiveness and obtain excessive profits, they will change their company's strategy through technological reforms, institutional innovations, etc. by adopting strategies that deviate from the conventional ones, and in this way, they will seize the emerging markets and increase the number of potential customers. So companies adopting different strategies will have different economic consequences.

The implementation of a differentiated strategy increases the risks and challenges faced by the company, which may lead to poor information exchange with investors and increase the difficulty for investors to understand the business decisions of the company, but the strategic differences can also improve the company's own competitive strength, attract potential customers, and convey the positive development prospects of the company to the investors, thus enhancing the investors' confidence in the company. At the same time, the implementation of differentiation strategy from the conventional strategy of the same industry, knowing that the degree of information asymmetry with investors is stronger, will make more efforts to disclose the company's information to the public, so as to improve the investors' understanding of the development of the company, which indirectly affects the cost of equity financing of the company; In addition, the implementation of the differentiation strategy of the company is more able to attract the attention of the media and analysts and so on. Companies implementing differentiation strategies are more attractive to the media and readers, and reporting relevant information can better reflect the value of the media; at the same time, some studies have found that analysts will tend to field research on listed companies with greater operational uncertainty and larger companies [59], the attention of the media and analysts can convey the company's information to the market, which is not only conducive to the understanding of investors of the company's business activities, but also enhances the credibility of the information. Credibility of the information. Based on the above analysis, the hypothesis is proposed:

H3: The degree of strategic differentiation of listed companies reduces the cost of equity financing

4. Study design

4.1. Sample selection and data sources

The objects of this paper are the development strategy of listed companies and the cost of equity financing. Among them, the development strategy of listed companies is in the "Development Strategy" section in the MD&A of the company's annual report, and it should be noted that the "Development Strategy" is the strategic plan of the management of listed companies for the next year. Based on this, this paper takes A-share listed companies in Shanghai and Shenzhen as the research object, the information of listed companies' development strategy comes from the annual reports of 2015- 2019, and the information of other variables comes from the data of 2016-2020.

Firstly, the 2015- 2019 annual reports from Juchao Information were processed, and Python programming was utilized to intercept the development strategy information in the annual reports, and for the information that could not be extracted by Python, it was manually organized and entered; the data for the other variables were obtained from the CSMAR database. The following samples were excluded: (1) financial listed companies; (2) companies that were treated by ST during the data period; (3) companies with missing relevant data, and a total of 4,942 data from 1,557 companies were obtained. The tools used in this paper to process and statistically analyze the data are: Python software, Excel, and Stata 16.0. This paper mitigates the impact of outliers on the regression results by shrinking the tails of continuous variables.

4.2. Selection of variables

4.2.1. Cost of equity financing

At present, China mainly measures the cost of equity financing from two perspectives: ex ante and ex post, in which the ex post cost of equity financing is measured by using the realized stock returns to measure the expected return on assets, and the resulting ex post cost of capital is often less accurate [60]. Ex ante cost of equity financing measures mainly include GGM model, GLS model, PEG model, MPEG model, and a comparison of the above methods based on the relevant literature reveals that the PEG model and MPEG model are more in line with China's practice and can better capture the impact of risk factors [61]. In this paper, the PEG model is used to estimate the cost of equity financing, and the specific model is:

$$RE_PEG = \sqrt{EPS_{t+2} - EPS_{t+1}/P_t} \quad (1)$$

Among them, RE_PEG is the cost of equity financing of the listed company in the period of t , and EPS_{t+2} , EPS_{t+1} are the average EPS of $t+2$ and $t+1$ predicted by analysts in the period of t , and P_t is the EPS at the end of the period of t .

4.2.2. Readability of strategy texts

Li [62] captures the complexity of the text of the annual report through the Fog index to measure the readability of the annual report; however, Loughran and McDonald [63] argue that the measurement of the Fog index is imprecise in the metrics of the annual report and propose a new idea of annual report metrics-measuring the size of the document of the company's annual report, which they argue is a multi-dimensional comprehensive measurement and does not need to perform document parsing, which reduces measurement and calculation errors; Lang [64] et al. measure the number of words in the text part of the annual report to measure the length of the annual report; many scholars in China mainly use the total number of words, the total number of characters, the size of the document, and the average length of the sentence to measure the readability of the text. The research object of this paper is the development strategy in the annual report, which is relatively short in length, so this paper utilizes the index of text length (total number of characters) to measure the readability of the strategy text.

$$WORDS = -Ln(\text{total number of characters}) \quad (2)$$

4.2.3. Strategic tone

Currently, the main methods for text sentiment analysis are: (1) lexical matching technology method, also known as "bag of words" method; (2) machine learning based methods. In this paper, we draw on the work of Deren Xie [27] and Jieran Lu [65] to measure the positive, negative, and net tone of strategic texts by calculating the vocabulary counts of positive and negative words in the text, as follows:

First use jieba participle to participle the strategy text of each company from 2015- 2019, delete some business nouns that exist in the positive (negative) sentiment dictionary; get the number of positive (negative) words in the strategy text through dictionary matching.

$$POS = Ln(\text{number of positive tone} + 1) \quad (3)$$

$$NEG = Ln(\text{number of negative tone} + 1) \quad (4)$$

$$TONE = \frac{\text{number of positive tone} - \text{number of negative tone}}{\text{number of positive tone} + \text{number of negative tone}} \quad (5)$$

4.2.4. Strategic differentiation

In the use of strategic text to calculate the company's strategic differences, drawing on the use of financial data to calculate the idea of strategic similarity [11], in the construction of a good text vector, you can use the Manhattan distance formula or the cosine angle of the method of measuring the company's strategic text and the industry's strategic text of the degree of similarity, the smaller the

similarity, the greater the degree of strategic differences. This paper utilizes the Manhattan distance formula for calculation, the specific steps are:

Firstly, the development strategy text of each company from 2015-2019 is subdivided by using jieba particles to eliminate proper nouns, stop words, words indicating macro environment; construct the company strategy Construct the text vector of company strategy and calculate the mean vector of each industry; Utilize the Manhattan distance to calculate the similarity between the text vector of the company and the mean vector of the industry. The larger the calculated, the greater the strategic differentiation of the company.

$$MHD = \sum_{k=1}^N |a_k - b_k| \quad (6)$$

4.2.5. Control variables

Based on the existing research literature, the following variables are selected as control variables in this paper: gearing ratio, firm size, return on assets, book-to-market ratio, beta coefficient, nature of ownership, and year and industry fixed effects .

(1) Gearing ratios: Firms with higher debt ratios are exposed to higher risks, and thus investors will demand more returns, leading to an increase in the cost of equity financing.

(2) Return on Assets: Investors believe that enterprises with low profitability will have higher risks in the future, and in order to reduce the risks they bear, they will demand a higher rate of return, and the cost of equity financing will increase accordingly.

(3) Company size: larger companies will disclose more information due to more attention, thus promoting investors' understanding of the company, reducing the information asymmetry between the company and investors, and indirectly lowering the company's cost of equity financing.

(4) Book-to-market ratio: Investors perceive that companies with a high book-to-market ratio tend to be undervalued and perceive them as promising, thus lowering the rate of return; however, at the same time, the risks faced by the company can be significant, which may lead investors to demand a higher rate of return, and the direction of the impact of the book-to-market ratio is therefore not certain.

(5) Beta coefficient: Stocks with large beta coefficients have high share price volatility, which increases investors' uncertainty about future returns and demands for returns, and increases the company's cost of equity financing.

(6) The nature of property rights: the nature of property rights is different, the degree of investor participation in corporate governance, the ability to interpret information there will be differences, can affect the information asymmetry between enterprises and investors, and ultimately affect the cost of equity financing.

The above relevant variables are defined in Table 1.

Table 1. Definitions of relevant variables.

Variable type	variable symbol	variable name	Variable Definition
Explanatory variable	RE_PEG	Cost of equity financing	Estimation using the PEG model
	WORDS	Number of text characters	-Logarithm of (total number of characters of development strategy text in MD&A
Explanatory variable	POS	Positive tone	Logarithm of number of positive words in the text of the development strategy in MD&A + 1
	NEG	Negative tone	Logarithm of number of negative words in the text of the development strategy in MD&A + 1
	TONE	Tone of voice	(Number of positive words - number of negative words)/ (number of positive words + number of negative words)
	MHD	Strategic differentiation	Similarity of company text vectors to industry mean vectors
	LEVERAGE	Gearing	Total liabilities/total assets
	SIZE	Company size	ln (total assets)
	ROA	return on assets	Net profit/total assets
Control variable	BM	Book-to-market ratio	Shareholders' equity/company market capitalization
	BETA	Beta coefficient	Download from CSMAR database
	SOE	Nature of property rights	State-owned enterprises take the value of 1, non-state-owned enterprises take the value of 0
	year	Annual effect	2016-2020
	Ind	industry effect	Segmentation of industries according to SEC classification standards

4.3. Modeling

According to the research idea and research hypotheses of this paper, the following model (7) is established in order to verify the relationship between text readability of listed companies' strategies and the cost of equity financing:

$$RE_PEG = \alpha_0 + \alpha_1 WORDS + \alpha_2 Controls + \varepsilon \tag{7}$$

In order to verify the relationship between the textual tone of listed companies' strategies and the cost of equity financing, the following models (8) (9) (10) are developed:

$$RE_PEG = \alpha_0 + \alpha_1 POS + \alpha_2 Controls + \varepsilon \tag{8}$$

$$RE_PEG = \alpha_0 + \alpha_1 NEG + \alpha_2 Controls + \varepsilon \tag{9}$$

$$RE_PEG = \alpha_0 + \alpha_1 TONE + \alpha_2 Controls + \varepsilon \tag{10}$$

In order to verify the relationship between the degree of strategic differentiation of listed companies' strategies and the cost of equity financing, the following model (11) is developed:

$$RE_PEG = \alpha_0 + \alpha_1 MHD + \alpha_2 Controls + \varepsilon \tag{11}$$

5. Empirical Analysis

5.1. Descriptive statistics

The table shows the results of descriptive statistics for the main variables. Among them, the standard deviations of the length of strategic texts (WORDS), positive tone (POS), positive intonation (NEG), net intonation (TONE), and the degree of strategic difference (MHD) are 0.807, 1.018, 2.174, 0.174, 0.188 respectively, which are relatively large, suggesting that the development strategies of different listed companies in the annual report MD&A are different in various aspects , there are

different styles of linguistic expressions for their information disclosure; the minimum value of negative tone is 0, which indicates the existence of listed companies that do not use words with negative meanings in their development strategies in the annual report MD&A, and the positive tone is significantly higher than the negative tone, and the listed companies tend to use positively meaningful words to express the company's future development strategies.

Table 2. Descriptive statistics for key variables.

Variant	Sample size	Average value	Standard deviation	Minimum value	Median value	Maximum values
RE_PEG	4942	0.104	0.0400	0.0230	0.100	0.238
WORDS	4942	-5.775	0.807	-7.702	-5.704	-4.007
POS	4942	6.400	1.018	3.219	6.445	8.468
NEG	4942	2.928	2.174	0	3.689	6.547
TONE	4942	0.850	0.174	0.213	0.901	1
MHD	4942	1.516	0.188	1.058	1.533	1.886
LEVERAGE	4942	0.457	0.190	0.0830	0.456	0.866
SIZE	4942	23.06	1.270	20.72	22.87	26.85
ROA	4942	0.0510	0.0480	-0.102	0.0420	0.210
SOE	4942	0.404	0.491	0	0	1
BM	4942	0.615	0.485	0.0890	0.478	2.914
RE_PEG	4942	0.104	0.0400	0.0230	0.100	0.238
WORDS	4942	-5.775	0.807	-7.702	-5.704	-4.007
POS	4942	6.400	1.018	3.219	6.445	8.468
NEG	4942	2.928	2.174	0	3.689	6.547

5.2. Regression analysis

Table 3 presents the test results of the regression analysis of the main variables in this paper. From the regression results of (1), the regression result of WORDS is significantly negative when the explanatory variable is RE_PEG, which is consistent with Hypothesis H1, which indicates that the text readability of the development strategy in the annual reports of listed companies reduces the cost of equity financing; and the long text length raises the investor's cost of information processing, which increases the cost of equity financing of listed companies. From the regression results of (2) and (3), it can be seen that the regression result of POS (NEG) is significantly positive when the explanatory variable is RE_PEG, i.e., the positive tone of listed company's strategy (negative tone) is significantly positively related to the cost of equity financing, This supports hypothesis H2, which suggests that there is a high probability that the management will manipulate the development strategy of listed company's annual report, and the management will make great efforts to disclose the future development of the company. The management will try its best to show a positive image of the company when disclosing the future development, but this will not make the investors fully trust; From the regression results of (4), the regression results of TONE in the explanatory variable is RE_PEG relationship is not significant, that is, the relationship between the net tone of listed companies' strategy and the cost of equity financing is not significant, which also confirms that the investors cannot fully trust the tone of voice in the development strategy. From the regression results of (5), it can be seen that the regression results of MHD are significantly positive when the explanatory variable is RE_PEG, i.e., the degree of strategic differentiation of listed companies is significantly negatively related to the cost of equity financing, which supports the hypothesis H3, suggesting that investors may prefer listed companies that implement differentiated strategies, believing that they have more development potential; at the same time, the companies that implement differentiated strategies may also try to disclose as much as possible relevant information or attract more attention from the third party, which increases the output as well as the authenticity of information, and ultimately reduces the cost of equity financing.

Table 3. Analysis of regression results.

Variant	RE_PEG (1)	RE_PEG (2)	RE_PEG (3)	RE_PEG (4)	RE_PEG (5)
WORDS	-0.0023*** (3.64)				
POS		0.0012*** (2.46)			
NEG			0.0005** (2.12)		
TONE				-0.0005 (-0.19)	
MHD					-0.0068** (-2.25)
LEVERAGE	0.042*** (10.41)	0.042*** (10.47)	0.042*** (10.44)	0.042*** (10.44)	0.042*** (10.46)
SIZE	0.000 (0.53)	0.000 (0.56)	0.000 (0.65)	0.000 (0.73)	0.000 (0.63)
ROA	0.077*** (5.74)	0.076*** (5.67)	0.075*** (5.63)	0.075*** (5.63)	0.077*** (5.60)
SOE	0.018*** (10.98)	-0.013*** (-11.34)	-0.013*** (-11.16)	-0.013*** (-11.28)	-0.013*** (-11.38)
BM	0.005*** (2.83)	0.018*** (10.91)	0.018*** (10.92)	0.018*** (10.90)	0.018*** (10.92)
BETA	0.030** (2.07)	0.005*** (2.85)	0.005*** (2.96)	0.005*** (2.94)	0.005*** (2.73)
Constant	0.018*** (10.98)	0.042*** (2.40)	0.040*** (2.74)	0.040*** (2.80)	0.052*** (3.38)
Ind	containment	containment	containment	containment	containment
year	containment	containment	containment	containment	containment
sample size	4,942	4,942	4,942	4,942	4,942
R2	0.248	0.247	0.247	0.246	0.247
Adjusted R2	0.244	0.243	0.243	0.242	0.243
F-value	54.94	54.82	54.64	54.28	54.44

6. Conclusion

6.1. Conclusion

The long-term and sustainable development of listed companies cannot be separated from the support of capital, and equity financing is one of the important ways for listed companies to obtain capital. The development strategy in the MD&A of listed companies' annual reports is an important channel for investors to understand the company's strategy, and it is also an important tool to influence investors' investment decisions and the company's equity financing cost. After understanding the relevant background, this paper studies China's Shanghai and Shenzhen A-share listed companies to explore the impact of listed companies' strategies on the cost of equity financing. Among them, the development strategy in the MD&A of listed companies' annual reports is taken as the entry point to analyze the relationship between its textual characteristics (readability, tone) and textual content (degree of strategic difference) and the cost of equity financing.

Through empirical research, this paper finds that: after controlling the relevant variables, the text readability of listed companies' development strategy is significantly negatively related to the cost of equity financing, i.e., the text readability of the development strategy in listed companies' annual reports reduces the cost of equity financing, and this conclusion is based on the length of the text (the total number of characters) as the inverse indicator of the text readability, which then suggests that a long-length strategy text affects the investor's cost of information processing, preventing investors from understanding the company's development and indirectly affecting the company's cost of equity

financing; both the positive and negative tone of listed companies' strategies are positively related to the cost of equity financing and this relationship is significant, but the relationship between the net tone and the cost of equity financing is not significant, suggesting that the tone of the development strategies of listed companies in their annual reports may not be fully trusted by investors because there exists a great incentive for management to manipulate the tone of development strategy; the degree of strategic differentiation of listed companies is significantly negatively related to the cost of equity financing, and investors may believe that listed companies implementing differentiated strategies will have more development potential; at the same time, the company may also disclose as much relevant information as possible to dispel investors' doubts about the existence of the company's future development, thus reducing the cost of equity financing.

6.2. Related Recommendations

At present, the cost paid by listed companies in China to take equity financing to obtain funds is still relatively high. Through the results of this paper, in order to reduce the company's equity financing costs, when disclosing the company's development strategy, listed companies can improve the quality of information by enhancing the readability of the text of the disclosure information, adopting the vocabulary that is easy to be understood by non-professional investors, and reducing the length of the text to enhance the readability of the text; and at the same time, avoiding the statements that overly embellish the company's development prospects, to ensure that the disclosure of the information of the relative authenticity of the disclosure information; When the company adopts a strategy that is different from the strategy of the same industry, it actively discloses the relevant information of the company, and at the same time, it can also make use of the disclosure of third parties such as the media, analysts, and so on, to show the prospect of the company to the investors.

It is very necessary for the relevant state agencies to continue to strengthen the supervision of the capital market and companies, and to improve the disclosure system regarding the textual information of the companies; at the same time, we can also try to involve accounting firms, news media and other organizations in the supervision system, so as to supervise the listed companies in an all-round way, promote the healthy development of the companies, and safeguard the interests of the public. Encourage the development of institutional investors, who are better able to rationally analyze information in the capital market than individual investors, and help individual investors accurately differentiate the quality of information disclosed by companies, which in turn improves the overall quality of investors in the entire market and promotes the healthy and sustainable development of the capital market.

6.3. Research Shortcomings and Improvements

This paper explores the relationship between text length, text tone, and degree of strategic differentiation of listed companies' strategies and the cost of equity financing, and the study has the following shortcomings:

(1) In selecting the measurement index of text readability, only the length of the text is used as a single index, which cannot comprehensively measure the readability of the text, and there may be a certain bias; (2) Regarding the research on the tone aspect of the text of the development strategy, it is found that the relationship between the net tone and the cost of equity financing is not significant, which can be further investigated by adopting other definitional approaches;

(3) Regarding the impact of strategic differentiation on investors, scholars also hold different views at present, while this paper does not conduct a more in-depth study on the underlying reasons for the implementation of differentiated strategies to reduce the cost of equity financing;

(4) The study of financing costs in this paper is limited to the cost of equity financing, and does not provide insight into the cost of debt financing, as well as the comprehensive financing costs of listed companies.

(5) The sample size of this paper is relatively small and no robustness analysis has been conducted, which does not allow for the determination of the error in the results of the study.

After that, further research can be done in the following areas:

(1) Use text length, average sentence length, density of specialized vocabulary and other indicators to comprehensively measure text readability, and further explore the impact of development strategy text readability on the cost of equity financing;

(2) Further explore the underlying reasons for the impact of strategic differentiation on investors.

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