

Pathos in ECCs during COVID-19: Discourse Analysis Based on Sino-A Companies

Qin Xiong¹, Yichun Xu¹, Tongying Yang¹, Meixin Zhuang¹, Yunnan Peng¹, Pingrong Zhou¹, Liuxian Wu¹, Sitong Chen¹, Yuqing Fan¹

¹School of English for International Business, Guangdong University of Foreign Studies, Guangzhou, China

Correspondence: Xiong Qin, School of English for International Business, Guangdong University of Foreign Studies, No.2 Baiyundadaobei, Guangzhou, China.

Received: February 27, 2022

Accepted: May 27, 2022

Online Published: May 27, 2022

doi:10.11114/smc.v10i1.5573

URL: <https://doi.org/10.11114/smc.v10i1.5573>

Abstract

This study compares the pathos strategies of Chinese and U.S. companies in the earnings conference calls. The earnings conference calls (ECCs) are important channels for listed companies to voluntarily present their disclosure. In the face of the covid crisis, different companies use different pathos strategies when summarizing the past operating conditions and expressing future development trends in ECCs. Based on the self-built corpus, this paper makes a comparative analysis of pathos strategies in the ECCs texts of Chinese and American companies in 2020 and 2021. We use the sentiment lexicon method and TF-IDF algorithm to calculate the sentiment index and keywords. The two parallel corpora show great differences in the following four aspects: emotional attitude, discourse perspective, ecological awareness, and actions. This research broadens the pathos research contents to the earnings conference calls and makes a certain theoretical contribution to the financial text research from the discourse perspective. The findings also help listed companies to further study how to use pathos in the ECCs to shape a good corporate image, enhance the audience's perception of the positive image of the companies and attract more investors.

Keywords: pathos, earnings conference calls, tf-idf algorithm, sentiment lexicon, COVID-19

1. Introduction

Since the COVID-19 spread around the world, most global companies have been hit heavily. The International Monetary Fund (IMF) points out in the *World Economic Outlook Reports* that the global economic growth rate in 2020 is expected to be - 4.4%¹. It is the lowest growth rate since the Second World War. Facing the crisis, different companies use different discourse strategies to try to minimize the negative impact of the crisis to enhance their public images when summarizing the recent operation and expressing prospects.

ECCs serve as an important channel for listed companies to present their voluntary disclosure. In addition to the objective financial situation of the company, the ECCs also indirectly convey subjective information about the company's executives. Influenced by the different cultural backgrounds, managers will use different discourse expressions and selectively convey the message to the public. Previous research has found that the company's information disclosure is not only affected by the company's operating conditions but also influenced by the emotions of managers (Mayew & Venkatachalam 2012) and personality characteristics of managers (Davis et al 2015). Besides, with the development of information media, the objective and appropriate information disclosure in ECCs have been found to play an important role in stabilizing the stock market (Cao & Zhang 2020), establishing a positive image of the company, and attracting more investors. In recent studies, pathos, as one of Aristotle's three persuasion methods, has been found to be widely used in ECCs (Merkl-Davies 2017). Thus, we focus on the pathos strategies in ECCs transcripts.

Based on the above background, this paper compares and analyzes the ECCs transcripts of Chinese and American companies from a rhetorical perspective. We further study the pathos strategies of companies in various countries in ECCs under the background of the epidemic crisis and use Python, Antconc, and other tools for quantitative analysis. In a theoretical sense, our study broadens the pathos research contents to the earnings conference calls and make a certain

¹ World Economic Outlook (imf.org)

theoretical contribution to the research of financial transcripts. Also, this paper further studies how the pathos strategies are used in ECCs and help build a positive corporate image. In a practical sense, this research helps companies to enhance the audience's perception of the positive corporate images with the strategies in ECCs and thus to attract more investors.

2. Literature review

2.1 Pathos

“Pathos” originates from western classical rhetoric and is one of the three persuasion methods in Aristotle's rhetoric philosophy. It refers to people's differences in judgment through painful or happy emotional changes (Kennedy 2006). Scholar James (2001) supplemented the definition and pointed out that “pathos” is an appeal to the audience's emotion and to achieve specific rhetorical effects by adjusting the audience's emotion. It mainly achieves a certain goal by influencing the emotion of the information recipients. Its significance is to stimulate the audience's emotion, make it accept the rhetorical point of view, and then take the corresponding action.

Initially, there was little research on pathos (Li & Gao 2021). Until the 21st century, with the rise of discourse research, more and more scholars pay attention to the application of pathos in persuasive discourse. Most existing researches mainly focus on rhetoric appeals. For example, Chen (2020) compares Chinese and American enterprise pathos strategies in profiles; Li & Zhu (2021) discuss the theoretical origin and mechanism construction of “empathy rhetoric”; Iris Reychav & Ofer Inbar (2019) research the emotion in enterprise social media system. Later, pathos has attracted many scholars' attentions and was found to be widely used in advertisement (Rabab'ah & Al-Qudah 2022), business discourse (Xiao & Lyu 2022), diplomatic discourse (Mori 2016), accounting text (Yu 2021), psychological study (Herrick 2005:84) and so on.

However, most of these studies on “pathos” were based on qualitative analysis and few papers have applied pathos to the text of ECCs. Especially in the epidemic crisis, pathos, as a persuasive rhetorical appeal, will be widely used by company managers in ECCs. Therefore, the pathos strategy in ECCs is worthy of further research.

2.2 Earnings Conference Calls

The earnings conference calls (hereafter ECCs) are important channels for listed companies to present their voluntary disclosure, which shows the characteristics of stage and high message retention. The research on ECCs mainly focuses on information disclosure and critical discourses. Many scholars studied the impact of ECCs information disclosure on the stock market. Joyce (2022) found that the transcribed tone and words have significant predictive power over stock market reactions after earnings conference calls. Also, Kristina (2022) thought that market microstructure analysis documents during earnings calls facilitate price formation in markets. Besides, Joonki & Zhou (2022) found that the managers strategically inject negative information about future cash flows into blame sentences, which can predict negative and non-reverting abnormal returns. The researchers above demonstrate the importance of ECCs information disclosure on the market from different perspectives. In the critical discourses research, many scholars studied the readability (Bu and Wang (2021), uncertainty (Kilian 2022), and sentiment (Sourav et al 2022) of ECCs transcripts.

Besides, with the development of technology, many quantitative analysis methods are applied to analyze ECCs transcripts. For example, McKayPrice (2012) researched the incremental informativeness of quarterly earnings conference calls. Also, Fabrizio et al (2018) used the earnings response coefficient (ERC) to analyze the relationship between the information content of ECCs and investors' uncertainty. Besides, Du et al, (2021) first segmented the transcripts and used the HowNet sentiment lexicon to analyze public opinion emotion. Also, Wang (2017) proposed the framework for the research of emotional analysis in the financial industry and realized the utilization and mining of financial information. Through the above literature review, it is found that compared with the descriptive statistical analysis of the corpus, these studies bring more technical support to discourse research and further proved the importance of discourse analysis in the financial market.

In general, both the research on information disclosure and critical discourse proves the value and significance of ECCs texts research. Therefore, this paper expands the research on ECCs from a rhetorical perspective.

2.3 Comparative Studies Between China and the United States

In recent years, comparative studies between Chinese and American companies have always been a research hotspot. For example, Lu (2015) constructed the Chinese and American corporate social responsibility (CSR) corpus and through word frequency statistics, they found that there are obvious differences in job characteristics between Chinese and American enterprises. Also, Jiang (2021) analyzed two dimensions of the mainstream media's COVID-19 reports and their ideological differences. Besides the listed above, some scholars also compare the cultural differences between China and the United States in different types of transcripts, such as in the news articles (Miao et al 2021), political slogans (William 2017), press conferences (Aditi, 2006) and so on. However, few scholars focused on the pathos

differences between Chinese and American companies in ECCs.

Therefore, this paper compares and analyzes the ECCs texts of Chinese and American companies from the perspective of rhetoric. We further study the strategies of companies in various countries in ECCs under the background of the COVID-19 crisis and use Python, Antconc, and other tools for quantitative analysis. Our research perspective can be divided into the following four aspects: emotional attitude, discourse perspective, ecological awareness, and behavior words.

3. Research Methods

3.1 Research Questions

This paper aims to explore how pathos strategies are applied in ECCs from Chinese and American companies under the background of COVID-19. More specifically, it attempts to settle the following three research questions.

- 1) What are the differences between the sentiment index and keywords of Sino--A companies in ECCs?
- 2) How do Chinese and American companies contribute to the persuasion through pathos in ECCs?
- 3) What are the possible reasons for the differences in pathos between Chinese and American companies?

For the first question, we will present our data results of key words and sentiment index of Chinese and American enterprises through python in 4.1. For the second question, we will comparatively analyze the discourse strategies between China and the United States from four perspectives: emotional attitude, discourse perspective, ecological awareness, and actions. For question 3, we will analyze the cultural differences behind the discourse strategies differences in 4.3.

3.2 Data Collection

This research has collected the ECCs transcripts of five CHN-based companies and five U.S.-based companies from the first quarter of 2020 to the second quarter of 2021. For each period, the transcripts of the 10 companies earning calls were collected and compiled in two parallel corpora, which are referred to as CC corpus and AA corpus. CC refers to Chinese companies and AA refers to U.S. companies. Table1 provides an overview of the two parallel corpora.

The Chinese company's ECCs transcripts are in Chinese and the U.S. company's ECCs transcripts are in English. The Chinese transcripts are mainly downloaded from E interactive and the corresponding company's official website. Some Chinese transcripts of ECCs were formed by manually proofreading audio or video. The English transcripts were directly collected from AlphaStreet and The Motley Fool website. The CC corpus has 142594 characters and the AA corpus has 273128 characters. The corpus collection standards of the two databases are uniform and similar in size to make sure the two parallel corpora have high comparability.

Table 1. Companies collected in different industries

Industry	CC	AA
Financial	China Construction Bank	AAT
Electronic information	SinoWealth	Software
Manufacturing	SMIC	Apple
Clothing	Semir	Guess
Biotech	Haohai	Amgen
The capacity (The number of characters)	142594	273128

3.3 Analysis Procedures

The research employed both quantitative and qualitative analysis methods to provide a detailed Pathos strategies analysis of online ECCs between Chinese and American companies under the background of COVID-19. On the quantitative side, Python was implemented to figure out the tone scores and keywords. In the qualitative analysis, we analyzed the specific contexts of words and the pathos strategies. In this process, the corpora were processed using the text analysis software Antconc3.2.4w.

shows our specific research process.

- 1) We firstly used the lexicon methods to calculate the sentiment index in the text. A bilingual sentiment lexicon was built in this process. Among them, the Chinese sentiment lexicon directly quotes the Chinese sentiment lexicon built by Jiang et al (2021). The English dictionary is a new sentiment lexicon that integrates Loughran and McDonald Master

Dictionary (2020) and knowledge networks. Due to the differences between Chinese and English texts, we conducted word segmentation on CC corpus by Python. Then we used the sentiment lexicon as the analysis template. Lastly, we write code and run it in Python to calculate each company's sentiment index. The value of this score ranges from -1 to 1. When the parameter is greater than 0, it means that the company's emotions in ECCS are generally positive. Conversely, when the parameter is less than 0, it means that the company's emotions in ECCS are generally negative. The formula for calculating the sentiment index *Tone* is as follows:

$$Tone = \frac{Pos - Neg}{Pos + Neg} \tag{1}$$

2) We then used the TF-IDF algorithm to analyze the keywords in the text. Term frequency-inverse document frequency (abbreviated as TF-IDF) is a common algorithm used in weighting technology for information retrieval and data mining. *TF* is term frequency and *IDF* is inverse document frequency. It is a statistical method used to assess the importance of a word to a file set or one of the documents in a corpus. The importance of a word increases proportionally with the number of times it appears in a file, but decreases inversely with the frequency it appears in the corpus. We firstly wrote the code and ran it in python. For better calculation, we segment the Chinese corpus in advance by jieba Chinese thesase inside Python. Jieba Library is currently an excellent third-party library of word breakers in China. The formula for calculating the importance index is as follows:

$$TF_IDF_{i,j} = TF_{i,j} \times IDF_i \tag{2}$$

$$TF_{i,j} = \frac{n_{i,j}}{\sum_k n_{k,j}} \tag{3}$$

$$IDF_i = \lg \frac{|D|}{|\{j: t_i \in d_j\}|} \tag{4}$$

|D|: total number of documents in Corpus

3) Lastly, based on the above data results, we make a qualitative analysis of the transcripts using Antconc3.2.4w. It can obtain the high-frequency words and common vocabulary collocations of the two corpora. After a comprehensive analysis of the transcripts, we found that the two parallel corpora show great differences in the following four aspects: emotional attitude, discourse perspective, ecological awareness, and behavior words. Therefore, this paper will deeply analyze the pathos strategies from the four aspects. Lastly, we summarize the pathos strategies between Chinese and American companies and make some explanations for the differences.

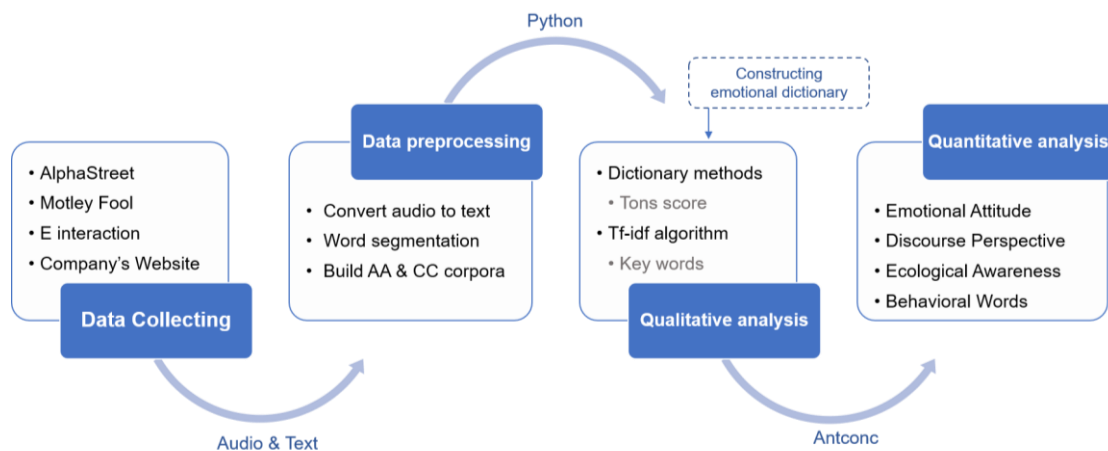


Figure 1. Research flow chart

4. Results

4.1 Data Results

4.1.1 Sentiment Index

We use the sentiment index to assess the sentiment of each company. The value of this index ranges from -1 to 1. When the parameter is greater than 0, it represents positive emotions on behalf of the company. Conversely, when the parameter is less than 0, it represents negative emotions for the company. Table 2 provides the sentiment index of Chinese and American companies. It can be seen from Table 2 that the sentiment index of the companies (except AAT)

is greater than 0, which means that the emotions of the companies are almost positive. Also, the average sentiment index of Chinese companies (0.6731154) is higher than American companies (0.349653974). Figure 2 is a bar chart of the sentiment index of Chinese and American companies in the same industry. In this chart, the sentiment index of Chinese companies is higher than the corresponding sentiment index of American companies.

Table 2. Sentiment index of the 10 companies

TYPE	Company	2020	2021	TOL	DIF
CC	CCB	0.666666667	0.729468599	0.699745547	0.062801932
CC	SinoWealth	0.611570248	0.686703097	0.637184116	0.075132849
CC	SMIC	0.654166667	0.618677043	0.641791045	-0.035489624
CC	Semir	0.671732523	0.579365079	0.612021858	-0.092367443
CC	Haohai	0.705263158	0.892857143	0.774834437	0.187593985
AVE		0.661879852	0.701414192	0.6731154	0.03953434
AA	AAT	-0.09178744	0.303571429	0.047021944	0.395358868
AA	Software	0.609589041	0.643979058	0.623188406	0.034390016
AA	Apple	0.461741425	0.616766467	0.509157509	0.155025042
AA	Guess	0.437908497	0.224334601	0.360110803	-0.213573896
AA	Amgen	0.184331797	0.303571429	0.208791209	0.119239631
AVE		0.320356664	0.418444597	0.349653974	0.098087932

Description: The sentiment index is between 1 and - 1. The higher the score, the more positive the emotion is; the lower the score, the more negative the emotion.

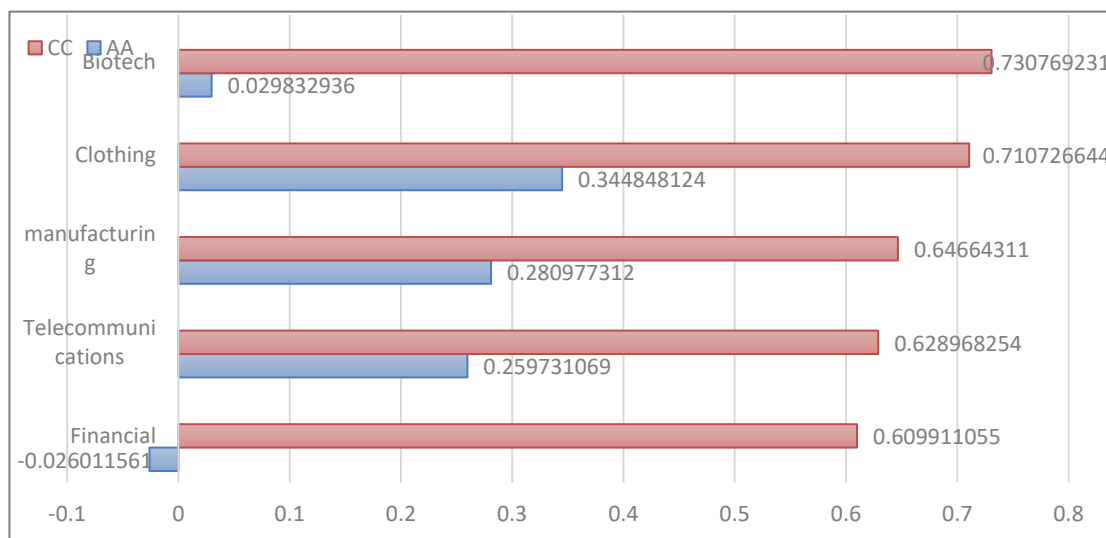


Figure 2. The Sentiment index of Different Companies

4.1.2 Keywords

We use Antconc3.2.4w to make a keyword list (Table 3) on the two corpora and select the top 20 words for analysis. This list makes a great contribution to the follow-up analysis. For example, from Table 3 we can see that the two corpora have the same keywords, such as customers, income, growth, etc. It shows that both Chinese and American companies attach great importance to these three aspects.

In general, the total frequency of “*expect*” in American texts is significantly higher than that in China, and the total frequency of “*growth*” and “*promotion*” is lower than that in China. This shows that in the text of the ECCs of the companies, the proportion of Chinese companies using “*expect*” is significantly lower than that of U.S. companies, and the proportion of “*growth*” and “*promotion*” is significantly higher than that of the U.S. This shows that Chinese companies are prudent and cautious in the face of the impact of the epidemic, while the United States maintains a more

optimistic and relaxed attitude.

Table 3. keywords in Semir's ECCs Texts (Top 50)

AA			CC		
NO.	Word	Key-value	Word	Key-value	
1	And	0.007147709163209252	公司 company	0.019058034281779858	
2	We	0.004887369282347521	产品 product	0.009994810025158781	
3	Chief	0.0038748683671915394	增长 increase	0.005873727218576724	
4	quarter	0.003672368184160343	发展 develop	0.005652672968415235	
5	year	0.003004664877949372	业务 business	0.004989510217930766	
6	So	0.003004664877949372	市场 market	0.004784245557066526	
7	Executive	0.0028897323416343683	客户 customer	0.004657928842688532	
8	Million	0.0027255430040415067	品牌 brand	0.004152661985176555	
9	Business	0.002408110284695307	建设 construction	0.0038368701992315705	
10	Question	0.0023971643288557827	研发 invent	0.0034579200560975877	
11	Customers	0.002238447969182683	银行 bank	0.0033000241631250954	
12	Continue	0.0021946641458245866	产能 capacity	0.0031894970380443506	
13	Revenue	0.0020906775653491074	提升 improve	0.003173707448747101	
14	Cloud	0.002074258631589821	管理 manage	0.003094759502260855	
15	Expect	0.0019757450290341042	影响 impact	0.003015811555774609	

Description: (1) In this study, we use python to implement the TF-IDF algorithm to calculate the key degree of each word in the text and show it with data. (2) The results of the algorithm have been sorted automatically, and the numerical value reflects the proportion of the number of times each word appears in the text. The larger the numerical value, the more critical the word is.

4.2 Pathos Strategies Comparison

Pathos is a useful and convenient way of expression. It replaces powerful words by manipulating others' feelings, providing speakers with the ability to attract audiences and signaling propositional relationships. This paper studies the differences in pathos strategies between Chinese and American companies through quantitative analysis and comparison. We will illustrate the results of this study from four aspects as follows, which are namely emotional attitude, discourse perspective, ecological awareness, and actions.

4.2.1 Emotional Attitude

By running the codes in Python, the sentiment index of different companies is calculated, as shown in Table 2. We can see that the average sentiment index of Chinese companies is higher, with an average of 0.665403659 while the average sentiment index of American companies is 0.177875576. In addition, we compare the sentiment index of each business for 2020 and 2021. We can find that the variance of the sentiment index of Chinese companies is 0.03953434 and that of American companies is 0.098087932. It can also be seen that the sentiment index of American companies changes greater than that of Chinese companies from 2020 to 2021.

We can infer that the tone of Chinese companies in the ECCs is relatively optimistic, and Chinese companies will use more pathos strategies to show the public the image of an optimistic striver. On the contrary, the tone of American companies in the earning call is relatively neutral and objective, and American companies will use more logos strategies (one of Aristotle's three persuasion techniques). In the earning call, they show a rational and objective image to the public.

We analyze the top 200 high-frequency words of Chinese and American companies and find that Chinese companies use a lot of obviously positive words in their ECCs, such as: grow, develop, further, improvement, extraordinary, innovation, increase, optimization, etc. Even in the face of the challenges posed by COVID-19, most Chinese companies timely adjust(ed?) their industrial development strategies, take positive measures to resume production and operation, and actively set up strategic plans such as new products and new retail. To a certain extent, it can be drawn that under the background of COVID-19, most Chinese companies have fully demonstrated to the public a corporate image of facing difficulties and being full of social responsibility. Below are some representative transcripts of the ECCs by using the Antconc concordance function.

- 1) *We made all-out efforts to provide **support** and guarantee against the epidemic. We immediately set up a leading group for epidemic prevention and control. (CCT 20 intro)*
- 2) *While protecting the safety of our employees, we introduced a series of financial service measures to **support** epidemic prevention and control and economic recovery with our customers. (CCT 20 intro)*
- 3) *While COVID-19 poses severe challenges to the medical services and pharmaceutical industry, we continue to **increase** investment in R & D. (Haohai 20 Intro).*
- 4) *There are certain uncertainties in the expectation of various indicators, but the company will **actively** strive to solve problems, try its **best** to ensure continuous operation and performance improvement, and better repay shareholders. (SIMC 21 intro)*

However, among the top 200 high-frequency words in U.S. companies, only a few words are conveying a distinctly positive emotion, but many words with vague emotions. For better understanding, we use Antconc to further explore the emotions of these ambiguous words in a specific context. A large number of emotional words appear neutral emotion, such as *just, some, first, all*, etc. In addition to showing uncertainty, these words also show a certain negative emotion in a specific context.

- 1) *We expect it to be catastrophic, but we **just** didn't know how bad it would be. (AAT 20 intro)*
- 2) *Unfortunately, maybe is that this risk **just** continues to increase. (Software 21 Q&A)*
- 3) *It's difficult with **just** this far into the cycle to make a statement..... (Apple 21 Q&A)*
- 4) *Innovation isn't **just** about what you make..... (Apple 20 intro)*

Generally speaking, Chinese companies mostly use a positive pathos strategy to achieve the purpose of persuasion. However, American companies are relatively neutral in emotion and use more logos strategies to achieve the purpose of persuasion.

4.2.3 Discourse Perspective

Discourse perspective words can show the positioning of a speaker and imply the distance between the speaker and the audience to a certain extent. Among the speaker and the audience, self-reference words help to shape the personalized image of companies and increase the credibility of discourse. Based on this, we count the words with discourse perspective from the keyword Table 4.

Table 4. Keywords of total Sino and American Companies

No.	American companies		Chinese companies	
	word	Score	Word	Scores
1	And	71.47709	company 公司	190.58034
2	We	48.87369	product 产品	99.9481
3	Chief	38.74868	increase 增长	58.73727
4	quarter	36.72368	develop 发展	56.52673
5	year	30.04665	business 业务	49.8951
6	So	30.04665	market 市场	47.84246
7	Executive	28.89732	customers 客户	46.57929
8	Million	27.25543	brand 品牌	41.52662
9	Business	24.0811	build 建设	38.3687
10	Question	23.97164	R&D 研发	34.5792
11	Customers	22.38448	bank 银行	33.00024
12	Continue	21.94664	capacity 产能	31.89497
13	Revenue	20.90678	promote 提升	31.73707
14	Cloud	20.74259	administrate 管理	30.9476
15	expect	19.75745	influence 影响	30.15812

Note: For better comparison, each score is multiplied by 10000 on the original basis.

In the aspect of self-reference words, American companies tend to use the word “we”, while Chinese companies often

use the word “*company*”. The former one is to call the company from the first perspective and the latter one is to call the company from the perspective of a third party. The advantage of the first person is to shorten the distance with the audience while calling the company from the perspective of a third party can reflect professionalism and authority.

We found that the scope of the word “*company*” is: the speaker and company; But the word “*we*” includes the speaker, company, and audience. For example:

- 1) *We continue to see normal inventory levels in the..... (Amegen 20 Q&A)*
- 2) *In the overall general environment poor situation, company sales realization year-on-year growth, reflects company product line layout toughness. (SinoWealth 20 Intro)*

The first sentence involves three parties: the speaker, the company, and the audience. In this sentence, American companies not only introduce their company’s performance but also try to win the recognition of the audience suggesting that American company’s performance is obvious to all. Not only did I personally see the performance of the company, but we all see the growth of the company. In the second sentence, the use of the word “*company*” lets the speaker introduce the company’s performance from the perspective of a third party. Although this alienates the distance from the audience, it increases the reliability of information and the authority of the company, and can also achieve the purpose of persuasion.

Table 5. The relative proportion of the perspective words

Word	AA	Relative proportion of the perspective words	CC
Market	0.001161		0.0042453
Investor	0.000445		0.0011667
customers	0.003445		0.0041469
You	0.010863		0.0010121
We	0.027227		0.0122720
Company	0.00079		0.0169250

Note: The word “*we*” also includes the words “*We*”, and “*our*”; the word “*customer*” includes the word “*customers*”

We delve into the parties involved in the two words. Our study is grounded in the line analysis and word cluster analysis of text retrieval of these two methods.

In addition, we compare the use of all discourse perspective words in the two parallel corpora. The specific results are shown in Table 5. In the ECCs of American companies, in addition to the high frequency of the word “*we*”, the evaluation rate of the word “*you*” is also high. It can be seen that the speaker has a strong sense of interaction with the audience, which is an interactive form of information transmission; In the perspective of Chinese company discourse, the relative proportion of words such as “*consumer*”, “*investor*” and “*market*” can reflect that the speakers of Chinese companies mostly take the perspective of a third party in the ECCs, which makes their position more objective and more reliable.

4.2.4 Ecological Awareness

To analyze the ecological awareness of Chinese and American companies, we collected the information related to the word “*epidemic*” in the ECCs texts in 2020 and 2021, including the importance scores of the word “*epidemic*” in the transcripts and some discourse expressions related to “*epidemic*”.

Table 6. The degree of importance of the word “*epidemic*” in Chinese companies

	The year 2020	The year 2021
SMIC	0.0021386830625114016	0.0020100933220684736
SinoWealth	0.008387260611788447	0.0019997033698087134
CCB	0.02003315550751287	0.0035546009259484375
Haohai	0.007080155061899339	—
Semir	0.007326870142605582	0.007326870142605582

The above Table 6 shows the degree of importance of “*epidemic*” in the ECCs transcripts of five Chinese companies in 2020 and 2021. On the whole, we can find that the importance scores of the word “*epidemic*” in the 2020 transcripts are higher than that in 2021. This result is related to the social background of epidemic severity. Under the background of COVID-19 in 2020, most Chinese companies are greatly affected. Thus, companies will pay greater importance to the

epidemic. With the normalization of epidemic prevention, China's epidemic situation has stabilized in 2021. The impact of the epidemic situation on Chinese companies has gradually decreased. Therefore, the proportion of words related to "epidemic" in the ECCs of companies in 2021 will be smaller than that in 2020, and the word "epidemic" even does not appear in the introduction transcripts of Haohai in 2021. From this, we can see that Chinese companies pay more attention to the epidemic situation in 2020, and their related ecological awareness is also obvious. In 2021, although the key index of the epidemic situation declined, it can also be seen that there are related topics of the epidemic situation mentioned in the meetings of Chinese companies, which reflects these companies' ecological awareness to some degree. To further analyze the ecological awareness of Chinese companies and the characteristics of the pathos strategies under this consciousness, we have extracted the following corresponding statements about the "epidemic":

- 1) *The world has suffered a huge **epidemic**, large customers have changed, and the market has an urgent need.* (SMIC20)
- 2) *The global **epidemic** continues to evolve, and the momentum of world economic recovery is uneven, although China's economy has continued to recover steadily this year, stable and good.* (China Construction Bank 21)
- 3) *To combat the **epidemic**, the company formulated the "Semir re-work and epidemic prevention and control operation guide" (Semir 20)*

Through the relevant description of the "epidemic" in the transcripts, it is clear that Chinese companies are facing the impact of the "epidemic". Most companies were candid about the impact of the pandemic on their company operations at the ECCs. But at the same time, they also express the company's confidence and corresponding strategy to actively face the epidemic. This expression shows the company's social responsibility and pulls the distance between the company and the public; it indirectly conveys the company's positive attitude towards the epidemic and tells people that Chinese companies are trying their best to fight against the epidemic. We can conclude that in the social context of the impact of the epidemic, Chinese companies in their ECCs behave a certain degree of ecological awareness and a positive attitude to face the epidemic, objectively expounding on the situation under the epidemic.

The United States shows some indifference to the epidemic. Our research found that American entrepreneurs have similar characteristics and can be said to be highly consistent with the country's ideology. In the list of high-frequency words, there are only a few words directly related to the epidemic in the top 50, and even fewer words related to epidemic prevention and control. We can see that American entrepreneurs are more concerned about personal interests and corporate-related interests, but less concerned about the occurrence and control of public health emergencies.

- 1) *"In any case, a year or so from now, once there is a vaccine, we expect to look back and hope that this will be nothing but a bad memory".* (AAT 20 intro)

In this example, the emotions expressed by AAT are relatively flat, and even have a hint of humor. It seems to them that everything would pass, and there is no need to worry too much.

- 2) *"Regarding things that have stayed the same, unfortunately, the pandemic is still with us, and we have seen new outbreaks in multiple countries. People are still very uncomfortable socializing and leaving their homes".* (Guess 21 intro)

In this case, we can see that they do not seem to be very happy with the decrease in sales caused by people not going out. This reflects that American entrepreneurs seem to be more concerned about the companies' interests than the epidemic and reflects their weaker and contemptuous ecological consciousness to a certain extent.

- 3) *"Our retail properties have not fared as well during the **pandemic**." "When COVID-19 began, I honestly didn't know how that it would be. We expect it to be catastrophic, but we just didn't know how bad it would be, now that the second quarter is behind us. I can tell you that it is not as catastrophic as our worst-case projections. It's still has been no fun."* (AAT 20 intro)

Compared with Chinese companies, the above-mentioned companies seem to be the negative and disappointing impact of the epidemic on companies. However, they do not respond with a positive attitude towards how they should deal with the negative impact of the current epidemic and blindly emphasize their losses or regret it.

In a word, Chinese entrepreneurs generally respond to the call of the country and are more concerned and cautious about epidemic prevention and control. In the United States, people have different understandings of the epidemic and its prevention and control, which will reflect more inclusive, open, relaxed, and optimistic ecological awareness. Chinese companies admit the impact of COVID-19 on their company and use pathos strategies by showing a positive attitude, while U.S. companies are indifferent about COVID-19 and may want to apply pathos strategies to decrease the impact of the epidemic on their companies.

4.2.5 Behavioral Words

The use of actions is one of the important reflections of the pathos strategy. For further research of the pathos strategies of Chinese companies in ECCs, we have compiled the top 50 actions in the respective keywords lists of five Chinese companies and their collocations in Table 7.

Table 7. Keywords list their collocations

Words	Year	Collocation
Develop	20	<i>Industrial capital has accelerated its development</i> <i>Rapid development</i> <i>Steady development</i>
	21	<i>Rapid development phase</i> <i>High-end development</i> <i>The development is relatively stable</i> <i>In the direction of positive development</i> <i>Long-term high-speed and steady development</i>
Grow	20	<i>Demand for high-end products is growing</i> <i>Performance growth</i> <i>R&D Spending is growing</i> <i>Assets and liabilities are growing rapidly</i> <i>Total assets growth</i> <i>Loans grew separately</i>
	21	<i>Performance is growing rapidly</i> <i>The market share shows a rapid growth trend</i> <i>There has been significant growth in all businesses</i> <i>Revenue and profit growth</i> <i>Materials and products achieved steady growth</i> <i>Products achieve rapid growth</i> <i>Performance has grown steadily</i>
Increase	20	<i>Operating income increased year-on-year;</i> <i>Increase the selling price</i> <i>R&D expenses increased</i> <i>Increase market share</i>
	21	<i>Significantly increase research and development investment</i> <i>The market share has gradually increased</i> <i>Increased research and development costs</i>
Promote	20	<i>Promote risk co-governance</i> <i>Promote the integration of environmental and social factors into a comprehensive risk management system</i> <i>Promote the low-carbon transformation of the economy</i> <i>To promote the vigorous development of new industries and new industries</i> <i>Continue to promote financial reform and innovation</i>
Advance	21	<i>Steadily advance</i> <i>Speed up the advance</i> <i>Focus on advancing</i> <i>Advance in an orderly manner</i> <i>Advance in depth</i> <i>Keep advancing</i>
Improve	20	<i>Improve risk prevention prejudgment</i> <i>Improve the system and mechanism</i> <i>Improve customer satisfaction</i> <i>Improve product quality</i>
	21	<i>Further improvement</i> <i>Continuous improvement</i>
Decline	20	<i>The proportion of consumption has decreased</i> <i>Gross margin decreased</i> <i>Shipments are decreasing;</i> <i>Other business revenue decreased month-on-month;</i> <i>Capacity utilization has decreased.</i>
Enhance	21	<i>Business development and market competitiveness have been comprehensively enhanced</i> <i>Effectively enhance</i> <i>Continuous enhancement</i> <i>Risk offset capacity is further enhanced</i> <i>Focus on enhancing the Group's integrated financial services</i>

Note: The above form is translated from the original Chinese text. In case of any difference between Chinese and English expressions, the original Chinese text shall prevail.

From the analysis of the top 50 *actions* and their collocations in 2020-year and 2021-year text keywords, we found that, in addition to the negative part of the word “*decline*” that appeared in 2020, “*develop*”, “*grow*”, “*improve*”, “*advance*”, “*improve*”, “*promote*”, “*enhance*” are all positive actions. And in 2020, the *actions* that enter the key top 50 are almost the same as the positive words that enter the key top 50 in 2021.

In addition, from the word combination, we can see that Chinese companies pay more attention to the expression of *actions* in 2021. For example, the expression collocation of the word “*growth*” is quite satisfactory in 2020, while in 2021, there are more intense expressions such as “*substantial growth*”, “*steady growth*” and “*rapid growth*”, which are more positive than those in 2020. Another example is that in the 2020 text, the word “*improve*” simply expresses what needs to be improved with the collocation of “*a verb and a noun*”, while in the 2021 text, it is matched with more expressive words such as “*further*”, “*continuous*” and “*more*”. What is more, the word “*advance*” in the texts of 2021 also has the collocation of “*steady*”, “*orderly*”, “*deep*” and “*sustained*”, which makes the related activities more active.

From the use of actions, it can be seen that Chinese companies generally show an optimistic attitude towards their development status and plans no matter in 2020 or 2021. We think there are two reasons for the fact that the *actions* in 2020 and 2021 are expressed in different degrees. Firstly, these companies benefit from the improvement of the social-economic environment. Second, influenced by Chinese traditional expression habits, Chinese people always “*report good news rather than bad ones*”. In most cases, they will say things on the bright side. For their development, companies need to present a positive corporate image to the masses. Therefore, Chinese companies will also adopt more positive discourse expressions to present their development status and plans.

In terms of U.S. companies, we also analyzed the Top 15 important words in the ECCs transcripts. As shown in Table 8, we can see that the words “*expect*” and “*continue*” are ranking high in both the word order and frequency in the ECCs transcripts of U.S. companies.

On one hand, the word “*expect*” can more fully show the image of American entrepreneurs who are naturally optimistic. By constantly using the word “*expect*” in ECCs transcripts, they have drawn a perfect blueprint for the future for companies and stakeholders, fully expressing their optimism and good yearning for the future in the context of the epidemic. On the other hand, it can also be seen that they tend to use the pathos appeal to positive predictions. Even if companies are affected by the epidemic, they are still confident about future conditions.

Table 8. Top 15 keywords of American Companies

No.	Words	Importance scores
1	And	0.007147709
2	We	0.004887369
3	Chief	0.003874868
4	Quarter	0.003672368
5	Year	0.003004665
6	So	0.003004665
7	Executive	0.002889732
8	Million	0.002725543
9	Business	0.00240811
10	Question	0.002397164
11	Customers	0.002238448
12	Continue	0.002194664
13	Revenue	0.002090678
14	Cloud	0.002074259
15	Expect	0.001975745

The following three examples express their expectations for more benefits and returns after their businesses are affected by the epidemic.

- 1) *We now **expect** services revenue to be closer to \$183 million. (Software 21 intro)*
- 2) *We **expect** further margin benefits in the remainder of the year and into next year as a result of this initiative. (Guess 20 intro)*
- 3) *We **expect** all other products in aggregate to grow double digits, and we also expect services to continue to grow double digits. (Apple 20 intro)*

These two cases express the ardent expectations of American entrepreneurs that the epidemic can be controlled and that the market and sales will return to normal as soon as possible.

- 1) *In any case, a year or so from now, once there is a vaccine, we **expect** to look back and hope that this will be*

nothing but a bad memory. (AAT 20 intro)

- 2) *For the full year we continue to **expect** the cost of sales as a percent of product sales to be generally consistent with 2019. (Amgen 20 intro)*

Through the above examples, we can easily find that they are optimistic about the impact of the epidemic on their business. They will hope that the sales and performance of the next quarter or year will get better and better, and they will be hopeful, rather than more pessimistically praying for more losses to be reduced.

Additionally, the word “*continue*” appears many times to denote the company’s good business strategy and good traditions, and will continue to optimize and improve. Under normal circumstances, through a quarter of operation, a company always summarizes and adjusts the previous operating strategies. Therefore, in ECCs transcriptions, the frequent use of this word can not only prove the company’s correct decision-making and forward direction but also reflect the company’s emergency response and handling capabilities for public health emergencies. Especially in the context of the global epidemic, the company’s sustainable development and adherence to good business strategies and concepts are a great advantage, and it can also attract more investors.

The “*continue*” in the following three examples is used to indicate continuation, adhering to the company’s practice, to some extent reflecting the correctness of the company’s decision-making.

- 1) *We **continue** to make decisions study-by-study and site-by-site to minimize risk to the patients and facilities and to maintain trial integrity (Amgen 20 intro)*
- 2) *As part of this initiative, we **continue** to work on our implementation plan for the sales force as our main e-commerce platform to service our business in both North America and Europe (Guess 20 intro)*
- 3) *Finally, we **continue** to improve the breadth and quality of our current services offerings and are adding new services that we think our customers will love (Apple 21 intro)*
- 4) *Here “**continue**” is used for **continuous** outlook, firmly believing that the market situation will be better after the epidemic.*
- 5) *Shifting to the ecosystem, we **continue** to see tremendous enthusiasm and excitement across Guidewire’s global partner community and marketplace (Software21 intro)*
- 6) *We **continue** to firmly believe that post-pandemic, being together in person will promote much better productivity, collaboration, and innovation... (AAT 20 intro)*

The continued above five examples all reflect the optimism and enthusiasm of the company in the ECCs. Continuing the company’s practices is strong support for the company’s good business and can also give stakeholders a certain amount of confidence.

The study found that the words “*expect*” and “*continue*” can indeed prove that American entrepreneurs are more optimistic about the epidemic and have greater confidence and tolerance for the business affected by the epidemic to some extent. In conclusion, there are a large number of behavioral words on the list of high-frequency words of Chinese companies such as “*increase*”, “*response*”, “*promote*”, “*improve*” and other verbs that denote corporate movements, while in the United States they prefer to disclose objective financial positions. In terms of pathos strategies, Chinese companies like to show their business conditions to the public with behavioral words that have positive emotions, while American companies use more pertinent words and make predictions.

4.3 Cause of Differences

Generally speaking, Chinese companies usually emphasize collective interests to stimulate the audience's emotion and achieve the purpose of persuasion, While U.S. companies emphasize consumer interest and appeal. Chinese cultural and emotional expressions are relatively subtle. So Chinese companies rarely mention negative views about the epidemic in the ECCs under the background of COVID-19. American culture emphasizes freedom and expresses emotions more directly. Therefore, it can be found that there are some negative or even extreme vocabularies in the evaluation of the epidemic.

4.3.1 Individualism and Collectivism

Judging from the influence of traditional Chinese culture, “benevolence”, “righteousness” and “faith” are advocated by Confucianism emphasize altruism and strengthen the social attributes other than the interests of others. Therefore, ethical behavior is more important than short-term profit growth.

American culture advocates individualism. Achieving personal goals is the priority. The evaluation of people by society is mainly based on personal achievements. In society, the company exists as an individual. To make profits might be the prior duty of a company. Thus, whether the economic benefits of the company can be realized is very important, and it is also the primary standard to measure the success of enterprises. Therefore, the focus of American companies is more

on the company's business status and future development.

4.3.2 Power Distance

Chinese culture is a culture with high power distance and is accustomed to accepting roles arranged by superiors. Influenced by this culture, companies tend to accept or obey the calls of higher-level departments and the country. Therefore, companies usually behave under their authority and responsibility during the epidemic.

American culture is a culture with low power distance. People usually have an egalitarian concept. As long as their ultimate goals are achieved, they will also achieve social responsibility at the highest level. If individuals or organizations are forced to assume social responsibility, it will be seen as an obstacle to the freedom and rights of the individual and organization. The specific performance is as follows:

1) Discourse perspective

The United States is a country with low power distance, so it tends to use words such as "we" and "our" to express strong interaction and intimacy with the audience and to shorten the distance; while Chinese companies belong to a country with high power distance. Therefore, they tend to refer to themselves by the company's name to maintain distance and a sense of authority.

2) Hedges

Companies have the biggest differences in the use of hedges for cognitive adjectives, adverbs, and nouns. American companies often use "approximately" together with "thousand, million" and other numerals to express quantitative accuracy. Such precise qualifiers can make judgments less than absolute, enhance the objectivity and credibility of discourse, and help guide the public to recognize the attitude and ability of companies to assume social responsibility (Hyland 1998). Insufficient use of hedges in Chinese companies may also be affected by the cultural tendency of the high power distance. They believe that large companies should have their authority and responsibility, and excessive use of hedges will appear to a lack of self-confidence.

4.3.3 Uncertainty Avoidance

China is a country with a moderate degree of uncertainty avoidance. People are willing to accept changes, such as value changes, and fulfill social responsibilities. However, the United States is a country with a low degree of uncertainty avoidance. People generally have a sense of security and tend to have a relaxed attitude towards life. Therefore, the high-frequency words from their reports did not highlight special concerns about the epidemic.

4.3.4 Long-Term And Short-Term Orientation

China is a country with a significant long-term orientation culture. It emphasizes long-term planning and adopts gradual reforms. At the same time, it also focuses on the future and does not care about short-term gains or losses. Affected by this culture, companies can look at the development with a long-term strategic perspective. On the contrary, the United States is a country with a short-term orientation culture, emphasizing facing the past and the present and focusing on immediate interests.

5. Discussion and Conclusion

As COVID-19 spreads rapidly in many countries, different companies took different discourse strategies in ECCs to minimize the negative impact of the crisis. Persuasion strategies have been found to be significantly used in ECCs (Crawford Camiciottoli, 2018). Influenced by cultural background, the attitudes of different countries and companies towards COVID-19 in ECCs are worth discussing. Therefore, the purpose of this research is to find out what pathos strategies Chinese and American companies used to persuade and how did they use this pathos in the ECCs to achieve some specific purpose of company information disclosure. Also, we have further analyzed the reasons accounting for these differences. In comparing companies of similar size in the same industry, we have found that 1) in sentiment index, Chinese companies are more optimistic, while American companies are more neutral. 2) in terms of the discourse perspective, Chinese companies habitually use the third perspective to hold meetings, which enhances the sense of authority and conviction; American companies are used to display from the first perspective, which shortens the distance with the audience. 3) As for the ecological awareness in ECCs, Chinese companies seem to have a stronger ecological awareness comparing with American companies as Chinese companies try to emphasize their contribution under the crisis; The ecological awareness of American companies is relatively weak as there are few references to the epidemic in ECCs to highlight that the epidemic has little impact on their companies. 4) On the operation performance of the company, Chinese companies tends to emphasize their previous achievements, while American companies tend to make commitments for the future.

Nevertheless, our research has some limitations. From the results, it can be seen that the pathos strategy adopted by companies in ECCs has a certain influence on corporate image, audience perception, and investor attitude. However,

what kind of pathos strategy is the most beneficial for companies needs further exploration and research. Additionally, in Liang Ting's paper (2019), although the text of the ECCs is also adopted, the investor sentiment is not studied for a specific social or economic environment. For future research, there are some potential research suggestions. Firstly, there may be more advanced algorithms to calculate the sentiment index in the future. The emotion of management is relatively complex in ECCs. When calculating the sentiment index, it will be more accurate to grasp the manager's emotion by combining the context. Also, as for the corpus size, future research can find the companies of the same type and scale for comparison.

Acknowledgements

We would like to extend our most sincere thanks to the tutor of this study, Dr. Yue Siwei, for her strong guidance on the direction and improvement of this study. The tutor's profound professional knowledge, serious scientific attitude, rigorous academic spirit, and tireless noble ethics have had a far-reaching impact on us.

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