Does Positive Text Expression Perceived Better:
Evidence from China Government Subsidy Announcement

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Text expression in the announcement of listed companies is very important while its market effect is not fully discovered. Government subsidy is regarded as good news because it can increase earnings directly. However, the text expression may indicate opposite effect. There are generally two ways of text expression besides the number of subsidies, positive and neural. We document the market reaction and the economic consequence of each type, examine factors that have the cross-sectional effect and provide possible explanation for managers to take negative mood. Collectively, our findings shed light on the power and information content of text, as well as the behavior of managers.

Keywords: Government Subsidy, Text Expression, Market Reaction

INTRODUCTION

Traditionally, the numerical value in the financial report and announcement is considered to be the only important and useful information. However, the text is also a really important part for both regular reports and announcements and we can observe that the length and complexity of the regular reports are growing, in which most part is literal. Recently more and more researches are focusing on the power of text (Li, 2008; Davis et al. 2012). These results measure the readability of annual report and provide evidence that managerial board use different type of text expression to fulfil their objectives especially when firms fall into a pickle. However there exists doubts about the effectiveness of the text for at least two views: firstly anecdotes said that annual reports are too long and few can read carefully and thoroughly about all the text expression, secondly the annual reports contain a large amount of information and this may induce noise and weaken the results.

As probably the most powerful government, the Chinese central government and its all levels of affiliated government (province, prefecture, county, and town) offer large amount of money to many companies, especially for the listed firms. Nearly 98% of the Chinese listed firms allege to achieve government subsidies according to the annual report in the last fiscal year. Each firm is required to mandatorily lease an announcement called "About achieving government subsidy report" when it get in sum more than 10% of the last year's earnings. Although it is often criticized and doubted by both Chinese and world market participants, the CSRC (China Security Regulation Committee, Chinese SEC) and two main exchanges pay strict attention to the disclosure and few companies dare to delay disclosure. One typical announcement about receiving government subsidy contains three parts: the numerical value in sum, the details of every income (typically each amount may be relatively small), the comments of managers. The numerical value adds to the earnings directly if it is earning-based or will be reckoned into deferred income if it is asset-based. The details of subsidies can help investors know better about the subsidy and the comments are the managers' judgement and reflect the managers' perception of this income. E. Lee et al. (2014) found that earnings from subsidy can be perceived by the market and it is value relevant.

There are at least three benefits for the Chinese subsidy announcement setting used in this paper to reveal the puzzle and weaken the endogeneity. Firstly, the Chinese sample provides a relative much cleaner aspect to consider the literal effect because these announcements usually contain one single issue. Secondly, the government subsidizes whatever improves the earnings thus relieving our worry about information itself. Existing research has shown that good news and bad news may have asymmetric effects while in general subsidies are good news. Third but not least, the habit or regulatory requirement that each announcement contains at least a sentence from the managers to judge the extent of impact on the firm induced by the subsidies gives us an opportunity to evaluate the information content of text expression.

The Mandarin Chinese may be one of the most complicated languages in the world because it can be interpreted into totally different meanings under different situations. The culture in China drives each person including the managers in listed company not to talk about anything in negative way. For example, even for the bad news or damaging event, they always tend not to speak out straightly. Zhao Ziye (2014) show evidence that 'no fault' expression means probably bad news or pessimistic judgement in Chinese independent director's opinion on related transactions. The habit is like this thus we may find more remarkable result in the announcement of Chinese listed firms.

Our paper proceeds along two lines. First, we show the distribution of positive text expression in government subsidy announcement and test the different reaction of positive expression and relatively neutral (perceived negative by Chinese investors) ones. Then we separate samples by their firm characteristics. Secondly, we provide two possible channels that may lead or induce the corporate managers to choose different ways of text expression, in which we prove the reasonable suspect that text expression in announcements provide more information than that in regular reports.

This paper contributes to the literature as the following. First, we show the usefulness of text expression with a clearer sample, which proves that textual part in the announcement has more information. Second, we systematically check the market reaction of government subsidy in China and provide evidence about how investors and market reflect to the information disclosure in the largest emerging country. Third, we show that Chinese government reach its hand out to help the non-state base on the consideration of economic results, which is a supplement of the view that Chinese government helps more on the state-control country because they take more social responsibility (Tang & Luo, 2007).

The remaining part of this paper is organized as follows: 'Literature review and Institutional background' briefly reviews the accounting and economics paper on the role of subsidy and corporate announcement. 'Hypothesis development and Research Design' develops the hypothesis and introduces the research method. 'Empirical results' presents the main findings of this paper and shows the possible channels inducing this phenomena and in the last section we conclude and make a suggestion for future research.

INSTITUTIONAL BACKGROUND

Beginning of Regulation

In February 2006, the Chinese Ministry of Finance issued Corporate Accounting Standards (CAS in short) No.16, government subsidy, a guideline on the financial accounting and disclosure of subsidy, which categorized government subsidy into asset based and earning based. In September 2008, the Shanghai Stock Exchange first mandated firms to specifically release disclosure of received government subsidy when the total government subsidy surpasses 10% of the net asset and net revenue earned last year. The other stock exchange, Shenzhen Stock Exchange also set the bar at 10%. However, with some companies under the 10% limitation, and due to relatively loose supervision on mandatory disclosure, the amount of observed government subsidy disclosure is very limited, which seems to show that neither enterprises nor investors had paid enough attention to this issue. Nevertheless, there are certain amount of companies issuing disclosure on government subsidy twice a year or even more frequently. E.Lee et al. (2014) find that government subsidy has a positive effect on stock price. J. Sheng (2014) estimated the effect of the amount of information revealed in government subsidy announcement in short time interval. Yet it is still an open question about the effect of different expressions adopted in the announcements.

Multiple Effects of Text Expression

The managing board may impose different effects on market by organizing the liberal expression in certain ways, including changing the text readability, adopting more warning expressions, using different tenses and adjusting the portion of informative text. Li (2010) suggests that listed companies in the United States would use longer and more complicated sentences to make negative news less obvious. Nelson and Pritchard (2016) find that the executive board would put more warnings to alert the investors. When faced with earnings decline, companies may put more pages on R&D investment to stress on their potential growth. Larcker et al. (2017) find that the executive board would adopt larger portion of industry background introduction to alleviate the shock of decline. Therefore, manipulating text expression is a pervasive method to affect investors' received information.

Due to the more flexible and complicated words and phrases combination of Chinese, the meanings conveyed through highly resembled expressions can vary vastly (Yuan 2013). Also, in Chinese language circumstances, some negative opinions or news can be expressed in a more subtle way. For instance, independent directors may send out their concerns by not giving compliments while avoid pointing out the shortcomings of the company directly; in this sense, a not-strongly supportive opinion should be interpreted as a kind of disapproval on associated transaction. Zhao (2014) provides evidence that the stock price reveals investors are aware of such signals.

Particular Behavior in Government Subsidy Announcement

According to the regulation in Shanghai exchange and Shenzhen exchange, companies are mandated to report received government subsidy when the total value surpass 10% of corresponding account in the previous year. Given the working process of drafting and issuing disclosure, we consider the disclosure issued in three days after receiving as immediate ones. Although compulsory, only 70% of mandated disclosure are issued within the three-day limit. Companies often receive inquiry letters from exchanges for overdue because of carelessness, which undermines the overall information disclosure efficiency. Having controlled these factors, we still find significantly varied emotional expressions in the government subsidy disclosures. For instance, it said that 'In our 2018 Annual Performance Forecast published in the evening of January 30th, 2019, we have taken the effect of government subsidy into careful consideration.' in the announce published by Toread Outdoor Products Co, Ltd. (300005.sz) in the evening of January 31th, 2019. In spite of its seemingly neutral literal meaning, associated with the forecast in the previous day, the announcement actually is to inform investors of the government subsidy of the company, and it turned out that the company stock receives abnormal positive return in the following day. Generally, Chinese expressions are more complex than those in English, which brings both challenge and opportunities to researches on Chinese government subsidy disclosure texts.

The documentary of listed firms is numerous, and government subsidy disclosure is only a small part of the issued announcements. Compared with the periodic reports in which significant financial data is proposed, which must be brought up to the boards for prudent discussion, decision and disclosure, the decision-making process associated with receiving government subsidy and issue announcements is much simplified. Besides, unless large amount of government subsidy is received right before the release of annual report, the confirmation dates of subsidy are rarely mixed with other important announcements. Therefore, we could get a relatively clean data to observe whether the text expressions create information increment.

The whole issuing process of government subsidy announcement can be analyzed as the input, generation and output of information, according to the theory in Information Science. The input of government subsidy information is offered by related government departments. Mainly the subsidy is given under three circumstances; firstly, the government and the company have reached some agreement beforehand, including IPO reward, environmental reward and excess employment reward; secondly, governments give out general subsidy to stimulate local economy, such as tax reduction and innovation subsidy to all firms inside the administrative regions; thirdly, governments bail out the failing companies, which usually goes with large amount of subsidy. It is not prudent to assume that all government immediate large-amount subsidies are one-time grant to companies. Rao and Wan (2018) use new econometric methods but couldn't entirely eliminate endogeneity problem. The first two circumstances can be well expected by the companies. Under the third circumstance, the common case in China is that companies submit reports to related government departments, and the government leaders give approval after discussion. The duration of the whole process is predictable if not certain. The message of the possible government subsidy is usually transferred to the Secretary of the Office, and the secretary of the board will make the announcements unless emergency occurs. On the demand side, being economically rational, the secretary of the board and the managing board would take an optimistic tone and more supportive words when releasing reports if they strongly need stock price rising or stability. Similarly, when the company has strong incentives to drive up the stock price, their government subsidy disclosure will appear to be more positive, vice versa. The investors, as the receiving side of the whole information system, are more likely to have positive feedback on the information increment brought by the texts, thus pushing up the stock price and generating excessive return, if they notice the signals within the texts.

RESEARCH DESIGN AND SAMPLE

Hypothesis Development

This paper mainly focuses on the information increment effect of the government subsidy disclosure texts. Inferring from the institutional background above, the managing board are more likely to use more positive expressions, no matter they compose deliberately or not, if the company is in good condition and the government subsidy provides significant benefit. The examples of positive and non-positive narratives are shown in Table 1.

TABLE 1
AN EXAMPLE OF THE DIFFERENT TYPE OF TEXT EXPRESSION

Signal	Positive	Neutral (non-positive)
Text expression	In accordance with the "Accounting Standards for Business Enterprises" and other relevant provisions, the company shall classify the above compensation as non-operating income in the current profits and losses. The above subsidies will have a positive impact on the company's 2016 annual profit.	According to the "Accounting Standards for Business Enterprises", the above project subsidies of 15.4 million yuan are included in other income. The specific accounting treatment is subject to the results confirmed by the annual audit of the accountant.
Type	Positive	No specific meaning
Signal conveyed	Optimistic	Neutral

Based on the analysis above, we formulate the first testable hypothesis:

H1: *The more positive literal statements used in government subsidy disclosure texts are correlated with better business performance.*

Next we pay attention to the firm characteristics that may influence this text expression effect. We divide the sample companies by their property rights, establishment time, total assets, number of shareholders, and the median of the portion of government subsidies received in the previous year's net profit, observe the amount of information contained in the announcement text in each sample catalog and estimate the increment effect.

To further study the possible influencing factors of this effect, we consider the degree of marketization of the region where the company is registered. The degree of marketization indicates the local economic development. In areas with lower marketization level, such as QingHai Province, there are relatively fewer listed companies and the local government values listed companies more, thus the company receiving larger subsidies from the government. Having controlled the portion of the government subsidies, the property rights and total assets, we can still observe better market performance of the companies with more positive expressions about subsidy.

Based on these, we formulate the second hypothesis:

H2: *The information increment effect of the government subsidy disclosure texts is more significant in areas with lower marketization level.*

Regression Model

We use the information content model below.

$$CAR = f(GText, ASub, Controls) \tag{1}$$

$$CAR_{[-1,1]} = f(GText, ASub, MKTI, Controls) \tag{2}$$

Model 1 and Model 2 examine Hypothesis 1 and Hypothesis 2 respectively. In Model 1, we first select the cumulative abnormal return $CAR_{[-1,1]}$ before and after the event to estimate the increment effect of the text in short time interval. We employ two methods to calculate abnormal return. The first one is using the market adjusted cumulative abnormal return. We set the benchmark as the average market

return rate and the index return of the corresponding industry for robustness. The second is to use CAPM model to calculate RCAR$_{[-1,1]}$, based on Gibbons et al. (1989). We use CAPM model to estimate beta and the abnormal return for the 120 trading days before the window. We eliminate the observations with insufficient trading days and negative R^2 within 300 trading days before the window. We set the long window as 20-day-period before and after the event, and eliminate the observations of firms with continuous suspension and other major events.

The definitions of other variables in the model are as follows: GText is a dummy variable. When the company uses positive expressions in government subsidy disclosure, the variable equals 1 if the disclosure is favorable to the company and 0 otherwise. We use machine reading for preliminary screening and then manual reading to determine whether positive text is used in the announcement or a positive signal is conveyed. ASub (Abnormal Subsidy) represents the proportion of the abnormal government subsidies over net profit of the previous year, which is calculated as:

$$ASub = \frac{Sub_t - Sub_{t-1}}{|Netprofit_{t-1}|} \tag{3}$$

The reason that we control the abnormal subsidy variable is that a significant amount of companies receive similar government subsidies every year. Only the incremental part may affect the market if the investors are aware of the subsidy pattern. If the company only has disclosure on current government subsidy and it is listed for the same subsidy in the government subsidy announcement issued within 60 trading days before the corresponding date last year, we employ the first calculating method. Generally, most companies report on the cumulative government subsidy this year. We use the second calculating method in this case. Compared with the subsidy received last year, the estimated subsidy value predicted by analysts is more accurate. But due to the fact that analysts rarely release special report for subsidy announcement solely, for the robustness, we do not adopt the analysts' forecast.

MKTI is the marketization index. We use the Fan Gang marketization index to measure the marketization level of regions each year. Since the latest version of Fan Gang index is updated to 2014, the index data in the following years is inferred based on index from 2008 to 2014. We substitute the index data from 2015 to 2017 with the data of 2014 in robustness test, and the results are nearly the same.

Among the dependent variables, ASSET is the natural logarithm of the total assets of the company in time period t-1. ROA is the return rate of total assets of the company in time period t-1. SPEC is a dummy variable that equals 1 when the company went through special process in the previous year (denoted as ST or *ST) or the companys' ROA is within (0,0.01]. In both cases, the companies are more likely to avoid delisting and be subsidized by local governments. LEV is the company's debt ratio. LOSS is a dummy variable that equals 1 if the company finally loses in the t period. The model controls the fixed effects of the industry and time. STATE is a dummy variable that equals 1 when the company is state-owned. NUM is the natural logarithm of the number of shareholders announced in the previous annual report. AGE is the company's listing years. We take the less-than-one-year part of listing as a whole year for simplicity. CUMU represents the control of the company's largest shareholder over the cumulative voting system and 1 means fully control. We control this variable for the concern that the control ability of the largest shareholder over the company may have impact on the company's information disclosure decisions. MSHARE is the company's executive shareholding ratio, calculated as the number of outstanding shares held by the company's executive divided by the total number of outstanding shares, disclosed in the periodic reports.

Sample and Data

Our samples are the announcements issued by the listed A-share companies in Shanghai and Shenzhen exchange specifically on government subsidy from 2008 to 2017, 7133 in total. We eliminate the samples that have incomplete financial data and missing variables, keep one government subsidy announcement for every two that are released within 20 trading days and take the date of the firstly issued

as disclosure date if there are continuously published disclosure on the same government subsidy. We have a total of 6,658 samples with sufficient trading days for $ACAR_{[-1,1]}$ method. Since the $RCAR_{[-1,1]}$ method requires sufficient trading days within the previous year of the window period, the number of our valid sample is 6443, after excluding those with negative coefficients. As introduced above, we eliminate the samples with continuous suspension and other major events when estimating the increment effect in long run. Therefore, the number of the corresponding samples are 4211 and 3055. All the original data are obtained from CSMAR Database. To prevent the effect of the extreme values, we winsorize the continuous variables on both sides by two-tailed 1%. The details of our sample are presented in Table 2.

As shown in the chart, the mean of GText is 0.61, which states that the percentage of positive literal description of government subsidy in the disclosure is 61%. The yearly data shows that the mean of GText declines with time, which is mainly due to the strict regulation imposed. The average of abnormal return measured by ACAR and RCAR are both significantly positive, indicating positive market response to government subsidy. The average of ASub is positive but insignificant, and the maximum value is relatively extreme, indicating that companies with poor performance receives more government subsidies and some receive large-amount one-time subsidy, which reflects the unplanned and unexpected side of government subsidy. The large standard deviation of the marketization index indicates that the degree of marketization differs widely among different regions. The average ROA of the sample is 0.031, which is significantly lower than 0.037, the average ROA of all companies in the period of 2008-2017, indicating that the overall performance of companies that receive subsidies are poorer than average level. The average value of STATE, 0.37, is significantly lower than that of all listed companies in China during the same period, 0.42, indicating that the frequency of announcements of state-owned enterprises that receive government subsidies may be lower. The mean of LOSS is 0.079, indicating that approximately 8% of the sample companies had a negative net profit for the current year.

TABLE 2
THE DESCRIPTION OF MAIN VARIABLES

Variable	No. of observations	Min	Max	Median	Std	Mean
$ACAR1_{[-1,1]}$	6658	-0.151	0.237	0.034	0.031	0.058
$ACAR2_{[-1,1]}$	6658	-0.148	0.229	0.032	0.031	0.057
$RCAR_{[-1,1]}$	6443	-0.154	0.228	0.034	0.028	0.057
$ACAR1_{[-20,20]}$	4211	-0.421	0.916	0.042	0.110	0.078
$ACAR2_{[-20,20]}$	4211	-0.407	0.856	0.048	0.113	0.080
$RCAR_{[-20,20]}$	3055	-0.384	0.815	0.051	0.103	0.077
GText	6658	0	1	1	0.488	0.610
ASub	6658	-0.082	3.462	0.073	0.115	0.091
MKTI	6658	0.800	9.910	6.080	2.205	6.287
ASSET	6658	20.038	27.397	22.415	1.236	22.623
SPEC	6658	0	1	0	0.292	0.094
ROA	6658	-0.314	0.305	0.029	0.068	0.031
LEV	6658	0.082	0.898	0.531	0.186	0.535
LOSS	6658	0	1	0	0.270	0.079
STATE	6658	0	1	0	0.482	0.368
NUM	6658	8.162	12.971	9.826	0.712	9.847
AGE	6658	1	23	9	3.765	8.233
CUMU	6658	0	1	1	0.484	0.627
MSHARE	6658	0.001	0.200	0.045	0.082	0.072

EMPIRICAL RESULTS

Abnormal Return of Text Signal

Table 3 shows the regression result of model 1. This table examines whether market prices react to the positive text expression. The dependent variable is short-window abnormal return, defined as single stock return minus market return for time period [-1,1], and long-window abnormal return for time period [-20,20]. The independent variables are: GText, Good Text expression, a dummy variable which equals one if managers give positive explanation about the subsidies, and zero otherwise; ASub, Abnormal Subsidy, defined as unexpected subsidy deflated by total assets; ASSET, log of total assets; SPEC, special treatment, a dummy variable that equals one when firms' return of assets last year is below 0.01; ROA is defined as return of assets; LEV, total liability divided by total assets; LOSS, a dummy variable equals one when firm has loss this year; ***, **, and * signify statistical significance at the 1%, 5%, and 10% levels, respectively. All regressions include firm and year fixed effects.

The first three columns show the short-window abnormal return. No matter what way of measuring abnormal return, the interaction of more positive text expression (GText) and abnormal subsidy has a significant positive coefficient which may imply that a more positive expression can enhance the reaction to the good news coming from subsidy. The coefficient of un-expected abnormal subsidy is unsurprisingly positive, indicating that stock market in China perceives abnormal government subsidy as an effective information. The larger companies receive a more weakened market reaction in which the coefficient of ASSET is negative. This may reflect the market valuation characteristics of Chines stock market that investors are more likely to react to the information from smaller firms than from the bigger ones. SPEC (Special Firms) has a remarkable positive coefficient, this finding proves the view that when firms are in trouble, any good news could be treated more important than the regular firms. Further we consider the economic consequence, in case that firms utilize more positive text expression, the market abnormal return will raise 0.09% with every percent raise of abnormal subsidy, thus, considering on average the sample has 9.1% ratio of abnormal subsidy, we can expect the sample get a 0.83% positive abnormal return when using positive text expression.

Column 4 to 6 shows the medium-window results. Although the medium window may have other factors which can affect stock price, we still find the coefficient of the interaction term is reliably positive. Similarly, firms that already are in trouble (SPEC equals one) or will fall in trouble (LOSS equals one) will have better performance when receiving subsidy, which proves that market perceives positive information coming from trouble firms. The economic consequence of medium-window is that 2.32% abnormal returns can be earned by the firms utilizing more positive text expression controlling for other effects.

TABLE 3
THE RELATION BETWEEN POSITIVE TEXT EXPRESSION AND ABNORMAL RETURN

Dependant Variable	$ACAR1_{[-1,1]}$	$ACAR2_{[-1,1]}$	$RCAR_{[-1,1]}$	$ACAR1_{[-20,20]}$	$ACAR2_{[-20,20]}$	$RCAR_{[-20,20]}$
Intercept	-0.0261**	-0.0237**	-0.0318**	-0.0553*	-0.0522*	-0.0614
GText	0.0027**	0.0028***	0.0024**	0.0043*	0.0045*	0.0041*
Asub	0.3271*	0.3092*	0.3511**	0.2847*	0.2993*	0.3221*
Gtext×Asub	0.0909***	0.0991***	0.1033***	0.2553**	0.2672**	0.3266**
ASSET	-0.0024*	-0.0020*	-0.0031**	-0.0081**	-0.0080**	-0.0072*
SPEC	0.0931***	0.0725**	0.1056**	0.1544**	0.1562**	0.1872**
ROA	-0.1128	-0.1212	-0.1227	-0.0901	-0.0924	-0.1522*
LEV	0.2627	0.2825*	0.3261*	0.1833	0.1887	0.2054
LOSS	0.0817**	0.0893**	0.0919**	0.1326**	0.1442**	0.1764**
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
No. of Observations	6658	6658	6443	4211	4211	3055
F test coefficient	3.82***	3.77***	4.09***	3.14***	3.26***	3.54***
Adjusted R^2	0.0831	0.0822	0.1010	0.0714	0.0698	0.0778

Moderating Effects of Firms' Characteristics

Further we consider different sub-sample. We split firms according to property right, age, total assets, number of stakeholders and proportion of government subsidy. We regard firms as state owned if its ultimate controller is state-owned company. For the other four characteristics, we split by median. The number of observations remain 6658. Column 1 and 2 of Table 4 shows the moderating effects of property rights. The enhancing effect of text expression we found above only remain significant in the private sub-sample. Besides, the government subsidy itself seems having no effect on the market reaction of state-owned firms. One possible explanation about this is that the investors treat subsidies for state-owned as normal events and they may be smart enough to recognize the essence of subsidy for state-owned firms to be part of the regular operation income because state companies often undertake relatively high social responsibilities. Of course, the state-owned firms are not likely to voluntarily disclose government subsidy and there are less samples, which may affect the results. Next two columns show that it is less useful for 'old firms' to use positive words in announcements. This finding can be explained by two ways. Firstly, the firms listed for long time has lower volatility than new firms; Secondly, governments, especially the lower-level governments tend to give new firms higher ratio of subsidy for both relationship-based view or preference view. What's more, the evidence we don't present in the main table indicates that newer firms are more like to make voluntary disclosure of receiving subsidy. All possible reasons mentioned above may lead to this phenomenon. Taking asset size into account, we find there is only a prominent result for smaller firms in trouble as shown in column 5 and 6. This can be interpreted that investors highly suspect the ability of government firms of larger size. Indeed although we can often hear Chinese government gives large amount of money to the extent of tens of billion RMB to large firms such as PetroChina, it is just a regular feedback. Also the total size for these firms is relative small under most situations. Next we pay attention to the numbers of shareholder, in fact shareholder number is highly correlated with total assets. However, there exists some difference between them. For example, Guizhou Moutai (Chinese most famous liquor firm) has a much smaller number of shareholder than comparable size companies, which often have lower turnover rate than Moutai. We can take this index as a combination of firm size, stock price and volatility. Column 7 and 8 show that firms with lower number of shareholders has stronger effect than higher ones. In the last two columns we separate samples by government subsidy ratio and the result shows that only high-ratio companies contribute to the whole sample. It is natural that firms with higher ratio of subsidy may either be high-tech firms or have stronger bonds with government.

Generally speaking, the private-owned firms show more prominent reflection of subsidy than state-owned ones. The role of positive text expression in newer and smaller firms is stronger than other firms, which may lead to the view that volatility of firms can affect the market's perception of text. The larger ratio firms received, the higher possibility they are in a rising industry or they may have trouble. Even if there may exist invisible evidence like the local governments making some unpublished commitment, we can predict that these firms are more like to have better performance when using more positive text expression in subsidy announcement.

As the final test of this part, we consider the region character. China is a vast country and has huge imbalance among different regions. For example, more than 100 listed firms locate in Suzhou, one prefecture city in JiangSu Province. However, there are only twelve listed firms come from QingHai Province. It can be predicted that government from QingHai are more likely to give helping hand to their twelve firms while the government in JiangSu may not have so strong incentive. Therefore, from the investor's view, they may value distinctly to these firms. Table 5 presents the results for this test.This table examines the different extent of marketization degree for firms to influence both short-term and medium-term abnormal return. We use Fan Gang Marketization Index to measure each firm's firm-year marketization level and the other variables are the same as Table 3. ***, **, and * signify statistical significance at the 1%, 5%, and 10% levels, respectively. All regressions include firm and year fixed effects.

We separate firms by median of their Fan Gang's marketization index. Only in the lower marketization sub-sample, the coefficient of the interaction of GText and ASub is significantly positive. One possible explanation is that in the higher regions, government are less likely to release arbitrary subsidy and investors have adequate precognition for subsidy. Thus the power of text expression is weakened. While in the lower regions, the government usually grant sudden and unexpected subsidy, and the market will react to this surprising information and the positive text expression effects emerge.

TABLE 4
THE MODERATING EFFECT OF FIRM CHARACTERISTICS

Dependant Variables	ACAR1[-1,1]		ACAR1[-1,1]		ACAR1[-1,1]		ACAR1[-1,1]		ACAR1[-1,1]	
	Property Right		Listing Time		Total Assets		No. of shareholders		Ratio of subsidy	
	State own	Private	Shorter	Longer	Smaller	Bigger	Fewer	More	Lower	Higher
GText	0.0024**	0.0030***	0.0034**	0.0020*	0.0028**	0.0022**	0.0022*	0.0023*	0.0024**	0.0033***
Asub	0.1562	0.4017**	0.4115**	0.2473*	0.4043**	0.1668	0.4106**	0.3229*	0.3220*	0.4706**
Gtext×Asub	0.0822	0.1847***	0.1854***	0.1072*	0.1698***	0.1205**	0.1330**	0.0798	0.0604	0.1299**
ASSET	-0.0024*	-0.0035**	-0.0055**	-0.0022	-0.0021	-0.0018	-0.0019	-0.0019	-0.0018	-0.0028*
SPEC	0.1056***	0.1244***	0.1108***	0.1223***	0.1247***	0.1174***	0.1340***	0.1253***	0.0806*	0.1442***
ROA	-0.0991	-0.1332	-0.1002	-0.1223	-0.1290	-0.1320	-0.0901	-0.1087	-0.1222	-0.1395
LEV	0.2542	0.2581	0.2558	0.2861	0.2557	0.2623	0.2709	0.2561	0.2419	0.2306
LOSS	0.1236**	0.1531***	0.1333**	0.1214**	0.1544***	0.0767*	0.0882**	0.0981**	0.0867**	0.1551**
Firm Fixed	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
No. of Sample	2450	4208	3329	3329	3329	3329	3329	3329	3329	3329
F test	4.23***	6.16***	7.23***	4.88***	6.13***	4.28***	8.91***	5.65***	3.61***	5.34***
Adjusted R^2	0.0709	0.1004	0.1121	0.0958	0.1041	0.1009	0.1321	0.0992	0.0973	0.0882

This table examines different firm characteristics' influence on the text perception. The dependent variable is short-window abnormal return, defined as single stock return minus market return for time period [-1,1]. We separate samples by property right, listing time, total assets, number of shareholders and ratio of received subsidy. The independent variables are the same as those in Table 3. ***, **, and * signify statistical significance at the 1%, 5%, and 10% levels, respectively. All regressions include firm and year fixed effects.

TABLE 5
THE MODERATING EFFECT OF MARKETIZATION DEGREE

Dependent Variable	Marketization degree			
	Lower $ACAR1_{[-1,1]}$	Higher $ACAR1_{[-1,1]}$	Lower $ACAR1_{[-20,20]}$	Higher $ACAR1_{[-20,20]}$
GText	0.0036^{**}	0.0025^{*}	0.0043^{**}	0.0042^{**}
Asub	0.3715^{***}	0.2052^{*}	0.5358^{*}	0.4729^{*}
Gtext×Asub	0.1228^{***}	0.0432	0.1902^{**}	0.0506
ASSET	0.0009	-0.0022^{*}	-0.0027^{*}	-0.0025^{*}
SPEC	0.1522^{***}	0.0663^{*}	0.1255^{*}	0.0804
ROA	-0.0927	-0.1344	-0.1000	-0.1433
LEV	0.2550	0.2505	0.2704	0.2601
LOSS	-0.0209	0.0748^{***}	0.0108	0.1113^{**}
Firm Fixed	YES	YES	YES	YES
Year Fixed	YES	YES	YES	YES
No. of Observations	3329	3329	6443	4211
F test	3.82^{***}	3.77^{***}	4.09^{***}	3.14^{***}
Adjusted R^2	0.0831	0.0822	0.1010	0.0714

Two Possible Channels

Above we have shown text expression signal. It has been more than two decades since China established its stock markets and the managers should use positive expression according to both experience and human nature. What consideration they take may lead to the fact that about 40% of announcement still choose the neutral type of text expression? In other word, can we explore more than stock price itself to find some more detailed information for listed firms from text expression signal in the announcement? We check from two views. First we pay close attention to the personal welfare of managers. If the managers have more stocks, they may have more incentives to prompt the stock price and use more positive text expression. Panel A of Table 6 presents the univariate test between managers' stock ratio and text expression signal. We find that positive text expression decreases with the proportion of managers' share descends. Based on the fact that executives of state-owned companies have really small ratio of shares, we solely report the result in private firms in the latter rows of Panel A, the result remains stable.

Another explanation is the managers dreading to be punished. If the firms will have great glide in future operation or they may have had trouble already, managers would use more conservative expressions like 'This may not lead to significant improve to firms' operation and profits' to alleviate possible responsibility of themselves. Panel B of Table 6 shows the relationship between text expression signal and the lagged operation income. For the sub-sample that using neutral text, there are 15 percent of firms encountering decline of performance while only 6 percent of the positive text firms encounter performance declining. This may prove the guess that managers have most information of companies and they make neutral expression in announcement based on the conservative consideration or just the evasion of punishment.

TABLE6
POSSIBLE FACTORS TO INFLUENCE THE TEXT EXPRESSION

Panel A：Managers' share ratio and Positive text expression				
Managers' share ratio	Top Quartile	Second Quartile	Third Quartile	Bottom Quartile
Positive Text Ratio	0.832	0.654	0.609	0.476
Managers' share in private firms	Top Quartile	Second Quartile	Third Quartile	Bottom Quartile
Positive text ratio	0.884	0.702	0.653	0.449
Panel B：Text expression and latter performance				
Text expression	Positive	Neutral	Difference（Z value）	
Possibility of worse performance	0.091	0.152	-0.061（-7.43***）	

Ancillary Tests

To strengthen convince of the findings above, we provide more ancillary tests. First we use matching sample method to regress Model 1 again. We choose firms having the same two-digit code, similar assets in the same year but different text signals in subsidy announcement. We have 218 pairs of samples. The result is shown in Table 7 and it is similar and reliable with Table 3. We also change the short-window to [-2, 2] or [-3, 3] and the medium-window to [-30, 30], the results remain the same.

Next we consider whether this result is driven by habit or just inertia. For instance, one firm may use the same type of text expression for years and unless huge change occurs it will not change the habitual type. To dispel the concern about this, we choose change sample only from the companies which change their type (positive to neutral or neutral to positive) for similar subsidies. There are 103 announcements changing their types among the whole sample, and the results remain stable. We also check the issue frequency of firms, it is not crucial whether firms used to issue announcements more frequently or less.

Then we choose the special situation firms (ST, *ST, Loss in next year) solely and regress again. We find the effect of text expression signal for these 'problem' firms is stronger than the whole sample which is expected in Section 4.3 that these firms are more likely to receive better valuation under positive signal transmitting from subsidy information. We also redefine private firms which get listed ticket by MBO from state-controlled firms or which buy the listing charter from state firms, it is shown that the define change does not influence the results.

As a final test, we examine the difference of voluntary and mandatory sample. As mentioned above, firms are compelled to release subsidy announcements while the subsidy reaches ten percent of last year both net assets and earnings. We define announcements as voluntary ones when it doesn't reach this regulatory line. The result shows whether active or passive announcement-releasing firms, the power of text expression signals of both are remarkable.

TABLE7
THE PROPENSITY SCORE MATCHING TEST

	Short term effect	Long term effect
Dependant	$ACAR1_{[-1,1]}$	$ACAR1_{[-20,20]}$
GText	0.0029***	0.0048**
Asub	0.3496***	0.4292***
Gtext×Asub	0.1202***	0.1874***
Firm Fixed Effect	YES	YES
Year Fixed Effect	YES	YES
No. of Observations	218	218
F test	12.89***	10.55***
Adjusted R^2	0.2021	0.1784

CONCLUSIONS

This paper examines whether the text expression signal has additional power in firms' announcement. Using government subsidy announcement in China stock market, we find in short window [-1, 1], more positive text expression can earn 0.83% abnormal return than neutral type. This effect is mainly contributed by private firms, new firms, highly rated firms and the firms from lower-marketization area. Further analysis shows that higher ratio of managers' share and worse future operation performance may be the possible reason driving firms to adopt neutral type expression. This research result provide evidence for the market power of text expression, shed light on corporate disclosure and inspire both investors, managers and regulators to pay attention to such effect. Future research can move on to all sample of announcement not only on subsidy and find a more clearer mechanism of text expression releasing strategy.

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