Firm-Level Economic Policy Uncertainty, Firms’ Investment and Financial Assets

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Very Preliminary

Abstract: We use text mining tools to construct a measure of economic policy uncertainty perceived by individual Chinese listed firms from their annual report texts. Our measure of firm-level economic policy uncertainty illustrates significant variations over time and across sectors. The dispersion of the perceived economic policy uncertainty measure rises significantly when the aggregate uncertainty goes high. The variation of this measure comes mainly from sector levels. Firms perceived economic policy uncertainties decrease corporate investment expenditures and increase holding financial assets. It is suggested that Chinese policy makers should increase process transparency when formulating economic policies, improve communication with firms and manage their expectations more effectively.

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1 Introduction

When firms make decisions on their business, they need to take the impact of economic policies formulated by the government into consideration. If economic policies are unpredictable, it will bring great troubles on business operations. In recent years, a growing strand of literature focuses on the impact of economic policy uncertainty on firms' behavior. However, the indicator they use to measure economic policy uncertainty cannot directly measure firms’ individual perception of uncertainty, so they cannot provide direct evidence for the impact of economic policy uncertainty on firms’ decision making. This paper uses text mining method to construct an index at a firm level to measure its individual perception of economic policy uncertainty from annual reports of listed firms in China. We use the indicator to the index to analyze the impact of economic policy uncertainty perceived by every firms on their investment behaviors and their allocation of financial assets.

There are two categories of indicators in the existing literatures that measure economic policy uncertainty. One category of literature uses exogenous events in combination with firms’ reliance on these exogenous events to measure their facing economic policy uncertainty. Using the election event as a measure of uncertainty, Julio and Yook (2012) find that the investment expenditures in election years were significantly reduced. Stein and Stone (2013) use energy price and currency exchange rate volatility to measure uncertainty faced by firms and find that high uncertainty inhibits investment expenditures and reduces the number of employees, but it can also stimulate R&D spending. Handley and Limao (2015) use a trade agreement to study the impact of trade policy uncertainty on
exporters and find that signing the trade agreement can reduce uncertainty and stimulate exporters’ exports. Kelly et al. (2016) exploited national elections and holding international summit to measure the policy uncertainty of the firms in each country, and find that the firms’ stock option prices are affected by uncertainty. In addition to the above researches that measured uncertainty through exogenous events, there are also a category of researches using the Economic Policy Uncertainty Index (EPU, (Baker et al., 2016)) to measure uncertainty. Kang et al. (2014), Gulen and Ion (2015) and Chen and Wang (2016) use EPU to study the impact of uncertainty on firms’ investment behaviors. Rao et al. (2017) further use this indicator to study the impact of uncertainty on the efficiency of investment and find that firms’ investment efficiency will increase in the period of high uncertainty. In addition, some researches use the EPU to study firms’ financial constraints and leverage (Tan and Zhang, 2017) and financialization (Peng et al., 2018).

Although it is feasible to measure economic policy uncertainty at the national level by EPU, if it is used to study the impact of uncertainty on firms in China, there will be following defects. Firstly, the index is constructed by newspaper texts in various regions and the newspaper selected for constructing China’s index is “South China Morning Post”, which is an English newspaper and published in Hong Kong. As an English newspaper which is published far away from China’s economic policy-making center, South China Morning Post cannot represent the mainstream media in China. Secondly, the EPU index is at the national level and there is only one indicator for firms in China at the same time. It is not possible to distinguish the different economic policy uncertainty that perceived by different firms. Therefore, when using the EPU index to study the impact of economic policy uncertainty on Chinese
firms, the impact of other macroeconomic factors cannot be completely excluded, since the time fixed effects cannot be controlled in the regression model. Thirdly, the economic policy uncertainty index based on newspaper texts cannot measure the impact perceived by firms, and cannot provide direct evidence for firms being affected by uncertainty. Therefore, this research attempts to use the index extracted from annual reports that are disclosed by listed firms to measure the impact of economic policy uncertainty that is faced by individual firms.

The practice of extracting information about firms from texts, such as annual reports and earnings reports, has been widely used. Earlier research measured the readability of these texts (Li, 2008; Loughran and McDonald, 2014) and tone (Feldman et al., 2010; Hanley and Hoberg, 2010; Loughran and McDonald, 2011; Davis et al., 2015) to get information about firms’ real business conditions. In recent years, more papers are not satisfied with simply extracting such general indicators from annual reports, but focus on extracting some specific contents, such as competition strategies (Hoberg and Phillips, 2010), business prospects (Li, 2010), and financial constraints (Loughran and McDonald, 2014). Therefore, it is feasible to use the annual report texts of listed firms to extract the index of economic policy uncertainty perceived by firms each year.

In this research, we use annual report texts of listed firms to extract the index of economic policy uncertainty perceived by firms and use this index to study the influence of economic policy uncertainty on firms’ investment decisions and their financial asset allocation. We find that increasing uncertainty faced by firms correlates with reducing investment expenditures and increasing the amount of
financial assets they hold. This finding provides evidence for “reservoir theory”. The grouping regression shows that the investment expenditures of non-SOE and large-scale firms have more reductions. Firm will increase their financial asset holdings when facing increased uncertainty, whether state-owned or non-state-owned firms, large firms or non-large-scale firms.

Compared with existing literatures, the contribution of our research is mainly reflected in the following three aspects. First of all, we construct a firm-level economic policy uncertainty index. In existing literature, both exogenous events and EPU index can only represent the uncertainty in macro, and cannot measures firms’ individual perception of economic policy uncertainty. We fill this gap by exploring the text of annual report of each listed firms to obtain their perception of economic policy uncertainty. Secondly, by using the firm-level economic policy uncertainty index, we estimate the effect of uncertainty on the behaviors of firms under the control of time-fixed effects, thereby enriching and expanding literatures on uncertainty. Finally, we find that the rise of economic policy uncertainty will lead firms to reduce their investment expenditures and increase their holdings of financial assets, thus providing empirical support for policy makers to improve their expectation management.

The rest of the paper is arranged as follows. Section 2 introduces hypothesis development. Section 3 is the research design; Section 4 present empirical results and the last section concludes.
2 Hypothesis

Existing literature show that when firms make investment decisions, they always take uncertainty into consideration. Although some theoretical models show that uncertainty may probably stimulate companies’ investment in some special conditions (Bar-Ilan and Strange, 1996; Abel, 1983), most of empirical works believe that in general, uncertainty always inhibits corporate investment (Gulen and Ion, 2015; Rao et al., 2017). Bloom (2014) highlights two main channels that uncertainty may affect business operations: one is real option channel and the other is risk aversion channel. Real option channel refers to the increase of the uncertainty of firms’ investment returns will lead them to wait for investment opportunities to avoid mistakes (Bernanke, 1983; Brennan and Schwartz, 1985; McDonald and Siegel, 1986). Bloom et al. (2007) points out that uncertainty can increase the values of real option, reduce the response rate of firms responding to demand shocks and policy stimulus, and therefore, investment will decline. The main mechanism of risk aversion channel is that investors want more risk compensation when facing higher risks. Uncertainty will increase the failure possibility of investment and the losses after failure will be even greater. Therefore the risk premium that investors claim will increase, the financial costs of firms will rise, and then their investment will be inhibited (Gilchrist et al., 2014). Another channel related to risk aversion involves analysis of “confidence”: From the perspective of pessimistic corporate management, they cannot make investment decisions based on the probability distribution of future states, but can only based on the worst scenario. Increasing uncertainty worsens the worst scenario, so the management will reduce investment. Tan and Zhang (2017) used EPU of China to study the
channels of uncertainty affecting firms’ investment. To conclude, we believe that economic policy uncertainty perceived by firms will also inhibit their investment and we get our first research hypothesis:

H1: "When firms perceive increasing economic policy uncertainty, their investment expenditures will decline."

If firms reduce their investment expenditures when perceiving increasing economic policy uncertainty, what are these savings spent on? One of important uses is to increase their proportions of financial assets. In recent years, the phenomenon of a significant increase in the amount of financial assets held by firms has received more and more attention. There are two explanations on firms holding financial assets. Some believe that firms’ increasing financial assets will “squeeze out” their investment in operating assets, since their purpose of investing in financial assets is earning profits and increasing financial assets is regarded as an “alternative” investment. Peng et al. (2018) use economic policy uncertainty of China to study financialization of Chinese listed firms and find out that rising uncertainty will inhibit firms’ investing in financial assets. So they argue that the main motivation for firms’ financialization is to pursue profits, thus “alternative” investment motivation. The other set of literatures suggests that the motivation for firms to invest in financial assets is saving money. When economic prospects are uncertain, firms will reduce their investment expenditures and increase the allocation of financial assets. Their purpose is to sell financial assets to obtain cash for investment and mitigate financial constraints when the economic prospects improve. In conclusion, our second hypothesis includes two competitive hypotheses.

H2a: "When firms perceive increasing economic policy uncertainty, their financial assets will increase."
H2b: "When firms perceive increasing economic policy uncertainty, their financial assets will decrease."

3 Firm-level Economic Policy Uncertainty

3.1 Measuring Firm-level Economic Policy Uncertainty

Our key explanatory variable is firm-level economic policy uncertainty, which is extracted from annual reports of listed firms in China. The specific method is as follows:

1. Cleaning texts. For each annual report text of listed companies. I removed all the numbers, letters, and all symbols except the fullstop("。"), indicating the end of a sentence. Then, we divided every annual reports into sentences according to full-stops("。"). I can get hundreds of annual report sentences from each annual report. Suppose the number of sentences in each annual report is M.

2. Segmenting sentences. Use jieba word segmentation tool of Python to segment each sentence and remove the stopwords at the same time. In order to reduce ambiguity, we define the user's vocabulary in advance. Words in the custom dictionary include full names and their abbreviation of all the A-share listed companies, names of the account title, terms used in the subsequent
operation to indicate the uncertainty, and Government and policy. After the word segmentation, each sentence becomes a word list,

3. Defining economic policy uncertainty sentences. Check each word in each sentence: if there is at least one word in the uncertainty words list, we think it is the sentence that represents the meaning of uncertainty and call them “uncertainty sentence”. Then check each word in each “uncertainty sentence”: if there is at least one word that means government, policy, etc., it is considered as a sentence indicating that the firm is facing economic policy uncertainty. Suppose the number of such sentences in an annual report is N. Uncertainty faced by a firm is measured by \( \frac{N}{M} \times 100\% \).

The reason why word segmentation is necessary is that words we used to identify uncertainty and policy have other meaning in combination with other words. For example, “change” itself is a word that indicates uncertainty about the future, but there is an account title named by “changes in fair value”. If word segmentation is omitted, the word “change” in the account title will be identified as an independent word. As a result, a sentence that describes a normal change in the firm’s assets will be judged as a sentence that expresses uncertainty. We can avoid the mistake by splitting sentences into terms with a custom dictionary which is consistent with those special terms. Specifically, we add “changes in fair value” to our custom dictionary, and “changes in fair value” will be recognized as a single term instead of two terms, “changes” and “fair value”, after word segmentation. Therefore, there will be no ambiguity in defining economic policy uncertainty sentences after word segmentation.
It should be emphasized that the firm-level economic policy uncertainty index has a value for each firm in each year. Using this index to study listed firms’ behaviors can control the time-fixed effects in the regression models. Otherwise, it will be difficult to completely eliminate endogeneity problems caused by macroeconomic factors.

3.2 Describing Firm-level Economic Policy Uncertainty

Figure 1 presents the histogram of FEPU, which is right-skewed. Most of FEPU are in range between 0 and 1, which means that no more than 1% content in the annual report is discussing economic policy uncertainty faced by the firm. However, there are some annual reports using a lot of contents, up to 4%, to discuss their economic policy uncertainty.
Figure 1 Distribution of FEPU

Figure 2 plots the histogram of the residuals from the projection of FEPU on sector fixed effects, time fixed effects and the interaction of time and sector fixed effects. The histogram of FEPU’s residual reflects its distribution without conditioning on a specific time-period and sector. It further illustrates this variation is relatively smaller than the variation of whole panel (the standard deviation of
this purely firm-level variation is 0.488 of the standard deviation of the full panel). Its kurtosis is 1.990 and skewness is 0.648, so the
distribution is light-tailed and a little right-skewed.

Figure 2 Distribution of FEPU’s Residual
Figure 3 plots the variation of 3 variables. The solid line presents the annual changes of the average across firms of FEPU. The two dashed lines present respectively the variation of standard deviation across firms of FEPU and its residual of the projection. When FEPU goes high, the two standard deviations also rise. It implied that when aggregate economic policy uncertainty increase, the dispersion of uncertainty perceived across firms also becomes large.
Figure 3 Variation in FEPU over time and correlation with FEPU

Figure 4 compares our firm-level economic policy uncertainty index and EPU index of China, which is constructed by Baker et al. (2016). We calculated annual average of EPU index to reduce its frequency. Before 2012, the change trends of FEPU and EPU are
similar. But after 2012, they became different. It is implied that firm-level economic policy uncertainty can reveal some information that EPU index of China cannot.

![Figure 4 Comparing EPU and FEPU](image)

Figure 4 Comparing EPU and FEPU
Figure 5 compares the correlation between EPU index of China and the average of FEPU in each sector. The correlation coefficient between EPU index of China and the aggregate FEPU is about 0.31. The two sectors that are most correlated with EPU index of China is "Real estate" and Construction, which are highly affected by the government’s policies. The three sectors that are least correlated with EPU index of China are Health and social work, "Catering and hospitality services" and Wholesale and retail, most products of which are necessities and are unlikely to be affected by economic policies.

Figure 5 Correlation between EPU and FEPU of each sector
In Table 1 In-group Variation and between-group Varia, we group the firms in our sample by sector, and compared FEPU’s within-group variation and out-group variation in each year. The column var_total presents the variation of FEPU of all firms in each year. The column meanvar_in and meanvar_out present the within-group variation and between-group variation of FEPU in each year respectively. All variation are divided by their free degree. The last two columns are results of anova analysis, which show that in each year, the main variation of FEPU comes from between-group variation. The result implies that firms in different sectors indeed perceive different level of economic policy uncertainty.

Table 1 In-group Variation and between-group Variation

<table>
<thead>
<tr>
<th>year</th>
<th>var</th>
<th>meanssd_ingroup</th>
<th>meanssd_between</th>
<th>fvalue</th>
<th>pvalue</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>0.190</td>
<td>0.175</td>
<td>1.636</td>
<td>10.933</td>
<td>0.000</td>
</tr>
<tr>
<td>2009</td>
<td>0.194</td>
<td>0.178</td>
<td>1.742</td>
<td>11.453</td>
<td>0.000</td>
</tr>
<tr>
<td>2010</td>
<td>0.166</td>
<td>0.147</td>
<td>2.314</td>
<td>17.711</td>
<td>0.000</td>
</tr>
<tr>
<td>2011</td>
<td>0.151</td>
<td>0.134</td>
<td>2.412</td>
<td>19.943</td>
<td>0.000</td>
</tr>
<tr>
<td>2012</td>
<td>0.229</td>
<td>0.224</td>
<td>1.058</td>
<td>5.774</td>
<td>0.000</td>
</tr>
<tr>
<td>2013</td>
<td>0.257</td>
<td>0.248</td>
<td>1.611</td>
<td>7.997</td>
<td>0.000</td>
</tr>
</tbody>
</table>
## 4 Data and Methodology

The data used in our empirical analysis come from the quarterly reports of listed firms, which are downloaded from CSMAR Database. The sample period is from January 2008 to December 2016, which is chosen to avoid possible interference caused by Split Stock Reform. All the variables are winsorized at 1% level in both tails.

Our baseline tests are panel regressions common to other investment literatures:

\[
Invest_{i,j,t} = \beta_0 + \beta_1FEPU_{i,j,t} + \beta_2TQ_{i,j,t-1} + \beta_3RG_{i,j,t-1} + \beta_4CF_{i,j,t} + \beta_5ROA_{i,j,t} + \beta_6\ln\text{Asset}_{i,j,t} + \beta_7\text{Leverage}_{i,j,t} + \beta_8MU_{i,j} + \beta_9IU_{j,t} + \sum_{\text{yearquarter}_i} + \sum_{\text{sector}_j} + \varepsilon_{i,j,t}
\]  
(A)

\[
FinAsset_{i,j,t} = \beta_0 + \beta_1FEPU_{i,j,t} + \beta_2TQ_{i,j,t-1} + \beta_3RG_{i,j,t-1} + \beta_4CF_{i,j,t} + \beta_5ROA_{i,j,t} + \beta_6\ln\text{Asset}_{i,j,t} + \beta_7\text{Leverage}_{i,j,t} + \beta_8MU_{i,j} + \beta_9IU_{j,t} + \sum_{\text{yearquarter}_i} + \sum_{\text{sector}_j} + \varepsilon_{i,j,t}
\]  
(B)
In this model, subscript $i$, $j$ and $t$ refer to firm, sector and calendar quarters, respectively. Standard errors are clustered at the sector and year-quarter level to correct for potential cross-sectional and serial correlation in the error term $\varepsilon_{i,j,t}$. For each firm $i$, the economic policy uncertainty variable ($\text{FEPU}_{i,j,t}$) is measured as firm-level economic policy uncertainty index, which are introduced in section 3.

There are two dependent variables in our empirical analysis, investment expenditures ($\text{Invest}_{i,j,t}$) and financial assets ($\text{FinAsset}_{i,j,t}$). According to the definition of Fu and Zhao (2014), Rao et al. (2017) and Tan and Zhang (2017), we use amount of cash paid by each firm for fixed assets, intangible assets and other long-term assets to measure investment expenditures. According to Demir (2009), Zhang and Zhang (2016) and Peng et al. (2018), financial asset held by each firm is measured by the sum of tradable financial assets, held-to-maturity investments, available-for-sale financial assets, real estate and derivative financial assets. Both variables are divided by firms’ total assets for normalization.

Control variables used in our research can be divided into two categories. One category includes variables that represent individual characteristics of firms, and the other category contains variables that represent business environment. Existing literature points out that firms’ investment behaviors are significantly affected by their investment opportunities and investment abilities, so in our regression model, we control their opportunities by Tobin’s Q ($\text{TQ}_{i,j,t-1}$) and revenue growth ($\text{RG}_{i,j,t-1}$) in the last period, and control their investment ability by cash holding ($\text{CF}_{i,j,t}$) in the current period. Other variables used to control firms’ individual characteristics are log of total assets ($\ln\text{Assets}_{i,j,t}$) to control firms’ size, ROA to control profitability, debt ratio ($\frac{\text{D}}{\text{A}}_{i,j,t}$) to control leverage. To
control uncertainty from market, we use standard deviation of Shanghai Stock Exchange Index’s daily returns ($MU_{i,j,t}$). To control uncertainty from sectors in which firms are located, we use the standard deviation of firms’ ROA in the same sector ($IU_{i,j,t}$). Market feature MU Standard deviation of Daily Yield of Shanghai Stock Index in the current period Industry feature IU The standard deviation of ROA of all firms in the same sector. All the variables used in our empirical analysis are listed in Table 2.

Table 2 Variables Introduction

<table>
<thead>
<tr>
<th>Category</th>
<th>Name</th>
<th>Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variables</td>
<td>FEPU</td>
<td>Manually extract from annual reports.</td>
</tr>
<tr>
<td></td>
<td>Invest</td>
<td>Cash paid by the firm for fixed assets, intangible assets and other long-term assets.</td>
</tr>
<tr>
<td></td>
<td>FinAsset</td>
<td>The company’s current holdings of transactional financial assets other than cash equivalents, held-to-maturity investments, available-for-sale financial assets, investment real estate, and derivative financial assets</td>
</tr>
<tr>
<td>Feature</td>
<td>Definition</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>( \ln(\text{Asset}) )</td>
<td>The natural log of total assets</td>
<td></td>
</tr>
<tr>
<td>( \text{ROA} )</td>
<td>Profits/Total assets</td>
<td></td>
</tr>
<tr>
<td>( \text{Leverage} )</td>
<td>Total assets/Total liabilities</td>
<td></td>
</tr>
<tr>
<td>( \text{RG} )</td>
<td>The natural of operating income - The natural log of operating income for the same period of the previous year</td>
<td></td>
</tr>
<tr>
<td>( \text{Tobin's Q} )</td>
<td>( \frac{\text{SharePrice} \times \text{SharesOutstanding} + \text{BookValuesofDebt}}{\text{TotalAssets}} )</td>
<td></td>
</tr>
<tr>
<td>( \text{CF} )</td>
<td>Operating cash flow</td>
<td></td>
</tr>
<tr>
<td>( \text{SOE} )</td>
<td>Equals 1 if actual controller is the government, equals 0 otherwise.</td>
<td></td>
</tr>
<tr>
<td>( \text{BIG} )</td>
<td>According to guidelines issued by the National Bureau of Statistics, equals 1 if meets criterion of a large-scale firm, equals 0 otherwise.</td>
<td></td>
</tr>
<tr>
<td>( \text{MU} )</td>
<td>Standard deviation of Daily Yield of Shanghai Stock Index in the current period</td>
<td></td>
</tr>
<tr>
<td>( \text{SU} )</td>
<td>The standard deviation of ROA of all firms in the same sector.</td>
<td></td>
</tr>
</tbody>
</table>
4.1 Descriptive Statistics

Table 3 presents the summary statistics for our sample firm-quarters. The investment and financial asset are normalized by dividing total asset, obtaining variables Invest and FinAsset. As shown, the average investment ratio and financial asset ratio are 3.5% and 3.2% respectively. The mean of our key variable “Firm-level Economic Policy Uncertainty” is about 0.697, which means that about 0.7% on average of the content in a annual report text states the economic policy uncertainty perceived by the firm in that year. We notice that the maximum value of FEPU is 4.034, which means in a annual report, up to 4% of the content involves economic policy uncertainty.

Table 3 Descriptive Statistics

<table>
<thead>
<tr>
<th>Name</th>
<th>Obs</th>
<th>Mean</th>
<th>Std.Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invest</td>
<td>55,357</td>
<td>0.035</td>
<td>0.041</td>
<td>0</td>
<td>0.642</td>
</tr>
<tr>
<td>FinAsset</td>
<td>31,222</td>
<td>0.032</td>
<td>0.071</td>
<td>0</td>
<td>0.91</td>
</tr>
<tr>
<td>FEPU</td>
<td>54,720</td>
<td>0.697</td>
<td>0.483</td>
<td>0</td>
<td>4.034</td>
</tr>
<tr>
<td>Asset(billion)</td>
<td>55,464</td>
<td>14.596</td>
<td>73.48</td>
<td>0.178</td>
<td>2426.28</td>
</tr>
</tbody>
</table>
### 5 Empirical Results

#### 5.1 Investment Results

We begin our empirical analysis by estimating baseline investment regressions using whole samples to study the impact of economic policy uncertainty on firms’ investment expenditures. The results in The economic effect of *FEPU* on SOEs is even larger: a one
A one standard deviation increase decreases corporate investment by 5.5 percentage points. Comparing large-size firms and the smaller ones, we find that large-size firms’ investment expenditures are significantly affected by economic policy uncertainty, while investment expenditures of the small firms are not affected by economic policy uncertainty. A one standard deviation increase in FEPU implies about 5 percentage point decline in corporate investment of large-size firms.

Table 4 Column (1) and (2) show that economic policy uncertainty has a significant negative effect on investment expenditures of firms. In the first column, we only control time fixed effects and firm fixed effects. In the second column, we control firm individual features. The results in both columns are consistent.

Then, we study whether economic policy uncertainty has different effects on different types of firms. All firms are classified according to whether their actual controllers are the government and their size. The empirical results are presented in The economic effect of FEPU on SOEs is even larger: a one standard deviation increase decreases corporate investment by 5.5 percentage points. Comparing large-size firms and the smaller ones, we find that large-size firms’ investment expenditures are significantly affected by economic policy uncertainty, while investment expenditures of the small firms are not affected by economic policy uncertainty. A one standard deviation increase in FEPU implies about 5 percentage point decline in corporate investment of large-size firms.
Table 4. We can show that a one standard deviation increase in firm-level economic policy uncertainty is associated with a more than 3.3% increase in the ratio of corporate investment to total asset. Given the mean of the ratio is 3.5%, the contribution of FEPU is also economically significant. All firms in the sample of regression (3) and (4) are SOEs; and in the sample of regression (5) and (6) are non-SOEs (private firms mainly). We find that SOEs reduce their investment expenditures significantly as economic policy uncertainty rises, but non-SOEs have not obvious effect. The economic effect of FEPU on SOEs is even larger: a one standard deviation increase decreases corporate investment by 5.5 percentage points. Comparing large-size firms and the smaller ones, we find that large-size firms’ investment expenditures are significantly affected by economic policy uncertainty, while investment expenditures of the small firms are not affected by economic policy uncertainty. A one standard deviation increase in FEPU implies about 5 percentage point decline in corporate investment of large-size firms.

Table 4 FEPU and Investment

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
<th>(10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole Sample</td>
<td>SOE</td>
<td>non-SOE</td>
<td>Large Size</td>
<td>Small Size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td>(2)</td>
<td>(3)</td>
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</tr>
<tr>
<td>Whole Sample</td>
<td></td>
<td>SOE</td>
<td>not SOE</td>
<td>Big Size</td>
<td>Small Size</td>
<td></td>
<td></td>
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<tr>
<td>finstd</td>
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</tr>
<tr>
<td>adj. R-sq</td>
<td>0.247</td>
<td>0.251</td>
<td>0.239</td>
<td>0.240</td>
<td>0.262</td>
<td>0.269</td>
<td>0.268</td>
<td>0.260</td>
<td>0.096</td>
<td>0.098</td>
</tr>
</tbody>
</table>

Table 5 FEPU and Financial Assets
<table>
<thead>
<tr>
<th></th>
<th>Time FE</th>
<th>Frim FE</th>
<th>Control Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEPU</td>
<td>0.261***</td>
<td>0.324**</td>
<td>0.184**</td>
</tr>
<tr>
<td></td>
<td>(0.062)</td>
<td>(0.063)</td>
<td>(0.080)</td>
</tr>
<tr>
<td></td>
<td>0.193**</td>
<td>0.358***</td>
<td>0.463***</td>
</tr>
<tr>
<td></td>
<td>(0.091)</td>
<td>(0.093)</td>
<td>(0.066)</td>
</tr>
<tr>
<td></td>
<td>0.231***</td>
<td>0.288***</td>
<td>0.330**</td>
</tr>
<tr>
<td></td>
<td>(0.066)</td>
<td>(0.144)</td>
<td>(0.148)</td>
</tr>
<tr>
<td></td>
<td>0.353**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Time FE: Y Y Y Y Y Y Y Y Y Y Y
Frim FE: Y Y Y Y Y Y Y Y Y Y Y
Control Variables: N Y N Y N Y N Y N Y

N: 26427 25321 11321 10959 14371 13680 18857 18173 7556 7135

adj. R-sq: 0.004 0.016 0.008 0.019 0.014 0.027 -0.003 0.013 -0.076 -0.074

Standard errors in parentheses

* p<.1  ** p<0.05  *** p<0.01
5.2 Financial Asset Results

Firms’ response to increasing economic policy uncertainty are not only reflected on investment expenditures, but also on the amounts of financial assets they hold. So we exploit model to study the effect of economic policy uncertainty on financial assets held by firms. Table 5 presents the regression results. Column (1) and column (2) report the results of regressing financial assets on the firm-level policy uncertainty. The coefficient is positive and significant, indicating that economic policy uncertainty perceived by firms contributes positively to their holding financial assets. In column (1), time fixed-effect and firm fixed-effect are controlled. In column (2), firm features are also controlled. We can show that a one-standard-deviation increase in \( FEPU \) is associated with a 12% to 15% increase in the ratio of holding financial asset to total asset and financial asset rises by more than 2 standard deviations.

Column (3)-(10) examine separately the different effects of economic policy uncertainty on different types of firms. The samples of column (3) and (4) are both SOEs, while the samples of column (5) and (6) are firms other than SOEs. Both of the samples in column (7) and (8) are big size firms, while the samples in column (9) and (10) are other small firms. We control time and firm fixed effects in column (3), (5), (7) and (9), and further control firm features in column (4), (6), (8) and (10). It is found that all types of firms increase their holding financial assets as economic policy uncertainty rises. For SOEs and big-size firms, a one standard deviation increase in \( FEPU \) is associated with about 10 percentage points increase in their financial assets. While for not-SOEs, the effect of a
one standard deviation of $FEPU$ is up to more than 20 percentage points increase in financial assets, and for small-size firms, the effect is also more than 15 percentage points increase.

6 Conclusion

In this research, we use text mining method to extract economic policy uncertainty perceived by individual listed firms from their annual reports and exploit this index to study how perceived economic policy uncertainty affects corporate investment and financial assets holding. Increase in perceived economic policy uncertainty will decrease corporate investment expenditures and increase their financial assets. The regressions in group reveal that state-owned firms are more likely to be affected by their perceived economic policy uncertainty.

Policy implications of our research is that firms are highly reliant on economic policies and they will be significantly affected by unexpected policy adjustments. Policy makers should increase the transparency of policy formulation process, strengthen their expectation management on firms, and guide firms’ reasonable expectation on the results of policy formulation, so as to reduce firms’ perceived economic policy uncertainty and eliminate adverse consequences caused by uncertainty.
References


