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Setting local economic growth targets: does it mitigate nationwide policy uncertainty?

Hao Yang[a] , Jing Ma[b] and Yinghao Pan[c]

ABSTRACT
Institutional theory holds that local governance is essential in shaping regional economic activity. This study evaluates whether local economic growth targets offset the detrimental effect of nationwide policy uncertainty on local business performance. Regression analyses of data from industrial firms and manually collected data on city economic growth targets in China show that higher local growth targets result in greater corporate investment, conditional on nationwide policy uncertainty, and that the impact is substantial through financial subsidies and allocating credit resources. However, local discretion in economic growth target setting might cause investment misallocation and efficiency loss.

KEYWORDS
local economic growth target; multilevel policy governance; policy uncertainty; local business performance; fiscal subsidies; credit resource allocation

1. INTRODUCTION

Although many countries have lifted the coronavirus disease 2019 (COVID-19) restrictions, geopolitical conflicts are escalating, and political and regulatory institutions alter the environment in which businesses operate. Economic policy uncertainty (EPU) has emerged as an impediment to economic activity, as businesses frequently face significant uncertainty regarding the timing, substance and potential consequences of policy decisions.[1] Therefore, uncertainty needs to be urgently addressed through regional recovery policies (e.g., Bailey et al., 2021; Lee, 2022; McCann et al., 2021a, 2021b). Some scholars posit that discretionary policies at the local level can help overcome macroeconomic uncertainty (McCann et al., 2021a). However, prior research does not reflect how local economic governance can protect business operations in an uncertain macro-policy environment.

To fill this literature gap, we investigate China's case, as the country has experienced extraordinary economic growth despite severe EPU over the last four decades. Before 2012, China's economy indicated an average annual growth rate of 10%, driven by substantial investment. The average rate of fixed asset investments was above 30%. However, China's central government's business rules and laws have long been opaque and onerous, which lead to severe EPU for enterprises (He et al., 2008; Nguyen et al., 2018). Therefore, conventional models predict that China's growth model will fail for two reasons. First, institutional theory holds that weakness in formal institutions leads to high transaction costs, which are detrimental to business performance (Bai et al., 2020; Coase, 1988; Gorringe, 1987). Second, most studies have demonstrated that EPU due to weak institutions, laws or other factors inhibits investment (Bernanke, 1983; Dixit & Pindyck, 1994).

However, there is no negative relationship between investment and EPU in China. Specifically, Figure 1 illustrates no apparent connection between EPU and the growth rate of fixed asset investments at the macro-level, and the two even display a positive nexus in some periods. What factors promote investment-driven growth and mitigate the negative effect of nationwide EPU in countries with significant EPU, such as China? Building on the literature that characterises the Chinese economy as 'market-preserving federalism' (Fukuyama, 2011; Weingast, 1995; Xu, 2011) and highlights the role of decentralisation in the 'China miracle' (Jin et al., 2005), we propose that local governance of economic growth can mitigate the impacts of nationwide

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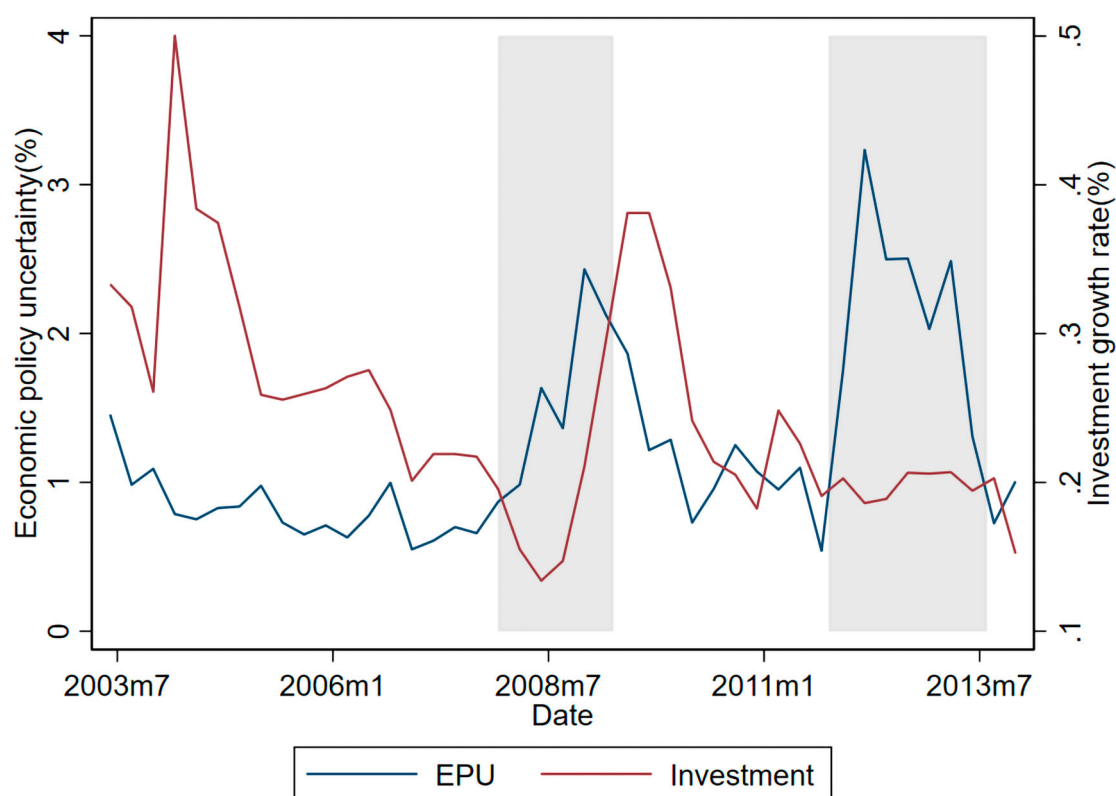
Figure 1. Economic policy uncertainty and the growth rate of fixed asset investment.
Source: Data are from the National Bureau of Statistics of China.

EPU on local corporate investment and business performance.

This study examines the impact of setting local growth targets in China. To incentivise local governments to promote economic growth, China's central government implements a management system for economic growth targets (Li et al., 2019; Ma, 2016). Each city is empowered to set and announce its annual economic growth target, which becomes an ex-ante guideline for its economic growth. By investigating this practice, we identify the mediating effect of local economic governance on investment-uncertainty sensitivity.

Our analysis of data from 2004 to 2013 on industrial firms and municipal economic growth targets in China reveals a positive mediating effect of growth targets on the negative relationship between EPU and corporate investment. In our preferred specification, the estimated coefficient of interaction terms between local growth targets and nationwide EPU is positive and statistically significant at the 1% level. These results hold for various robustness tests, including instrumental variable estimation and different ways to measure EPU and corporate fixed asset investment. More importantly, we uncover the mechanisms underlying the mediating effect of local economic growth targets.

Our study contributes to several strands of the literature on regional studies. First, research has extensively investigated institutionalist approaches to regional growth (e.g., Farole et al., 2011; Gertler, 2010; Kamal & Sundaram, 2019; Nguyen et al., 2018; Rafiqui, 2008;

Rodríguez-Pose, 2013; Storper, 2010; Tomaney, 2014). Some scholars believe that for local business performance, the quality of institutions is more crucial than other factors such as geography (Luca, 2021; Williamson, 2000). Recent studies have also identified indicators of institutional quality based on current evidence from Chinese city prefectures (e.g., Han et al., 2021; Pan & Fan, 2023; Rodríguez-Pose & Zhang, 2019, 2020) or have used historical data for the same purpose (Jiang et al., 2019; Wang et al., 2021). However, although better local institutions can attract more corporate investment (Dawley et al., 2019), little has been done to measure the effect of nationwide EPU when discussing the role of local governments in business formation and performance. Using granular firm-level data, this study fills this research gap by emphasising the role of local governments in mitigating nationwide EPU.

Second, we discuss decentralisation, which, according to the literature, affects economic growth (Carniti et al., 2019), electoral swings (Lago & Blais, 2020), income inequality (Tselios, 2022) and government quality (Kyriacou et al., 2017). For example, Tselios (2022) finds that decentralisation reduces income inequality through improved governance quality. In China, scholars such as Jin et al. (2005) assert that Chinese-style federalism incentivises local governments to pursue market-supportive activities. From the perspective of setting local growth targets, we demonstrate that local discretionary economic policies can overcome the prevalent nationwide EPU.

Third, we expand on the determinants of local business performance. Regarding institutional theory (see Fritsch & Storey, 2014, for a detailed discussion), Nguyen et al. (2018) report that young and small firms in Vietnam benefit from improved local governance and have fewer transaction costs. Meanwhile, Krugman (1996) argues that business performance depends primarily on factors such as innovation ability and marketing strategies rather than local institutions. Our finding – that local discretion in an economic target setting can improve corporate investment – supports the fundamental predictions of new institutional economics.

The remainder of this paper is organised as follows. Section 2 provides the institutional background. Section 3 discusses the hypotheses. Section 4 describes the empirical strategy and defines the variables. Section 5 presents the empirical results from the instrumental approach. Section 6 investigates the mechanisms of the two types of local targeting policies and the potential effects on economic growth targets. Section 7 concludes.

2. SETTING LOCAL GROWTH TARGETS IN CHINA

On account of its distinct growth target management and ongoing economic transition, China provides an appropriate context for exploring the mediating effect of local economic governance arrangements on corporate investment-uncertainty sensitivity. As the world's largest developing country, managing and incentivising local governments is a massive challenge for China's central government (Lee, 1998). Before the reform and opening up, China's newly established central government followed the Soviet Union's planned economic model, implementing plans and targets to manage the economy. For example, the first five-year plan, implemented in 1953, focused on industrial construction. After the Third Plenary Session of the Eleventh Central Committee of the Chinese Communist Party, China's economic institutions began transforming from a planned model to a market-oriented system. However, growth target management is still being implemented, with government administration retaining top-down management and control over local governments (Li et al., 2019). Growth is the most significant among the many targets for all levels of government. China has both long- and short-term growth targets. Long-term targets are set in the government's five-year plan, while short-term goals are set each year and published in the government's annual working report. For example, municipal congresses deliberate and vote on the jurisdiction's annual economic growth targets. Although the central government does not enforce the setting of growth targets, most local governments strive to fulfil the target because of the performance-based promotion tournament (Yao & Zhang, 2015).

Local growth targets in China could result in economic growth (Li et al., 2021) and enterprise overcapacity (Chen et al., 2021). The economic growth target serves as an ex-ante guideline for a municipality's economic growth, thus

indicating the capacity of local governance for economic growth. In general, a higher economic growth target is associated with faster economic growth, and with economic decentralisation, local governments enjoy greater autonomy to allocate resources to meet their target. For instance, they may use low-cost land, credit resource allocation and preferential rules to attract investments (Cai et al., 2022; Rodríguez-Pose & Ezcurra, 2009; Yu et al., 2016). In summary, the economic growth target set by local governments is not merely a symbolic number on paper but a crucial element in local economic growth.

3. CONCEPTUAL FRAMEWORK

Our hypotheses is based on Williamson's (2000) institutional theory. The source of EPU is information asymmetry, where enterprises are unaware of the timing, content and potential impact of policy decisions, which induces high transaction costs (Williamson, 2000). As China lacks formal economic institutions, standard rules and laws have remained opaque to businesses, which causes significant EPU (Huang, 2008). However, local governments often promote regional economic growth.

Institutionalist theories argue that local governments have become the key institutional vehicle for regional economic development policies (Di Porto et al., 2017; Ketels, 2017), and many studies testify to the significance of local government actions such as fiscal policies for corporate investment. China employs a local governance model known as 'market-preserving federalism', which combines interregional competition with the recognition and promotion of local officials according to regional economic progress (Fukuyama, 2011; Weingast, 1995; Xu, 2011). Accordingly, local officials constantly attempt to foster regional economic growth to achieve promotion.

Each local government sets its growth target and does its best to achieve it. The growth target is often considered a roadmap for future local economic development, and is widely communicated by governments through the media. This target might alter entrepreneurs' expectations of the future regional economic environment when EPU persists (e.g., Blume, 2006). For instance, numerous international financial institutions changed their economic projections for China based on their economic growth targets (Li et al., 2019). Another notable feature of China's economic transition is the decentralisation of central and local governments (Cai & Treisman, 2006). Local governments now have more economic autonomy, which strengthens their capacity for local economic governance. They can access policy instruments to meet their economic growth targets and protect local enterprises from uncertain external policy environments.

Additionally, because local officials' advancement and rewards are tied to meeting the growth target, the target should coincide with local capacity (Chen et al., 2021; Li et al., 2019). Localities with higher growth targets use more effective policy tools and have better ability to manage economic growth and shield businesses from EPU. This assertion is tested as follows.

Hypothesis 1: A local government with a high economic growth target more effectively mitigates the adverse impact of nationwide EPU on corporate investment.

Hypothesis 1 raises the question of how the moderating effect of the growth target operates. Studies provide at least two theoretical explanations for the negative relationship between EPU and corporate investments. The first is from the real options literature. From a corporate perspective, in an unhealthy economic environment, enterprise cash flow suffers from high EPU, which leads firms to wait and see, thus delaying investment until the uncertainty is resolved (Bernanke, 1983; Dixit & Pindyck, 1994; Rodrik, 1991). Second, EPU limits investment opportunities and increases the failure probability of projects, which lowers return on investment and reduces corporate incentive to invest (Greenwald & Stiglitz, 1990; Gulen & Ion, 2016). The negative relationship between EPU and investment is driven by unpredictable future cash flow and decreased return on investment.

Through decentralisation, local governments have many policy options to develop economies and achieve growth targets. Specifically, the growth target reveals the aspirations of local officials to promote economic growth and is associated with target-directed policy instruments such as financial subsidies and credit resource allocation (Lewis, 2017; Li et al., 2022). These target-directed policy tools may play a key role in the mediating effects of local growth targets. For instance, when there is significant EPU, local governments may increase fiscal subsidies to businesses to ensure stable investment and achieve growth targets. Financial subsidies bring additional cash flow to firms, thereby reducing future cash flow unpredictability. Moreover, the ability of local governments to offer financial subsidies to protect businesses depends on financial pressure. Local economic governance is more effective in areas with lower financial stress. We propose as follows.

Hypothesis 2: Higher local growth targets are positively associated with government subsidies for enterprises as EPU increases. The mediating effect of local growth targets is stronger in regions with a lower level of fiscal stress.

In addition to government subsidies, reducing corporate financing costs is a potential policy option under significant EPU. It can increase return on investment, which offsets EPU's detrimental effects on achieving local growth targets. Therefore, we infer that a larger growth target is associated with lower business financing costs when EPU increases. Meanwhile, because of China's decentralisation and imperfect financial regulations, local officials frequently allocate bank loans through administrative control (Li et al., 2022). For example, some regional officials hold bank management positions, which enables them to grant credit resources and manage credit costs. It leads us to predict that the mediating effect of growth targets is more pronounced in regions where local officials maintain connections with banks, as outlined below:

Hypothesis 3: Higher local growth targets are negatively associated with the financing costs of enterprises as EPU rises. The mediating effect of local growth targets is more pronounced in regions where local officials hold positions in banks.

Although our predictions imply that local economic governance based on growth targets can protect local businesses from nationwide EPU, a natural concern is whether local discretionary policies decrease investment efficiency (Capello & Kroll, 2016). We assume that allocating fiscal subsidies and credit resources are key channels for mediating effects. Investment misallocation occurs when fiscal subsidies and credit resources are allocated to address EPU without considering corporate productivity. The lack of effective financial laws and institutions in China causes distortions in the distribution of credit resources and fiscal funds (Bai et al., 2020; Hsieh & Klenow, 2009; Song et al., 2011). For example, numerous politically connected but ineffective corporations absorb many productive resources. Thus, we expect that the mediating effects of growth targets will lead to more investment in less effective enterprises, which reduces investment efficiency, as hypothesised below:

Hypothesis 4: The mediating effect of local growth targets is larger in less effective firms, which induces investment misallocation.

4. RESEARCH DESIGN AND DATA

4.1. Methodology

We follow Baker et al. (2016) to quantify the mediating effect of economic growth targets on the relationship between EPU and investment, and estimate the following model:

$$
\begin{aligned}
Invest_{i,c,t} = \beta_0 \\
+ \beta_1 Growt\arg_{c,t} + \lambda Growt\arg_{c,t} \times EPU_{t-1} \\
+ \beta_2 X_{c,t} + \beta_3 Z_{i,c,t} + \omega_t + \kappa_i + \varepsilon_{i,c,t}
\end{aligned}
\tag{1}
$$

where $Invest_{i,c,t}$ represents corporate fixed asset investment for firm i, in city c and year t. Following Brandt et al. (2012), we use the corporate net value of fixed assets to construct the measurement of $Invest_{i,c,t}$ and use total assets to normalise investment. $Growtarg_{c,t}$ is the economic growth target of the municipal government, announced at the beginning of each year. EPU_{t-1} denotes nationwide EPU, as defined by Baker et al. (2016), lagged by one period following previous research. Based on Gulen and Ion (2016) and Liu et al. (2021), we convert the monthly uncertainty index to an annual index by first deriving the quarterly index with weightings of 1/6, 2/6 and 3/6 to the three months of each quarter. Second, we calculate the yearly index with weightings of 1/10, 2/10, 3/10 and 4/10 to the annual quarterly indexes.[2] We are interested in coefficient λ of the interaction between the growth

Table 1. Definitions of variables.

Variable	Description	Definition
Invest	Fixed asset investment	Net value of fixed assets/total assets
Asset	Total assets (1000 yuan)	ln(Total assets)
Age	Corporate age	ln(Year – opening year + 1)
Export	Export status	1 = Export firm; 0 = Non-exporting firm
Roa	Return on assets	Total profit/total assets
State	State-owned firms	1 = State-owned firms; 0 = Non-state-owned firms
Private	Privately owned firms	1 = Privately owned firms; 0 = Non-privately owned firms
Foreign	Foreign-owned firms	1 = Foreign-owned firms; 0 = Non-foreign-owned firms
Collective	Collective-owned firms	1 = Collective-owned firms; 0 = Non-collective-owned firms
Other	Other types of firms	1 = Other types of firms; 0 = Otherwise
Subsidy	Financial subsidies for firms	1 = Receiving firms; 0 = Non-receiving firms
Interest	Interest expense	Interest expense/operating income
Mrpk	Marginal revenue products of capital	Gross output value/real capital stock
Tfp	Total factor productivity	Solow residual
EPU	Economic policy uncertainty (%)	From Baker et al. (2016) and Huang and Luk (2020)
Growtarg	Economic growth target (%)	Economic growth target of the municipal government
Pergdp	Per capita gross domestic product (GDP) (yuan)	ln(Per capita GDP)
Growrate	Economic growth rate (%)	Economic growth rate of the municipal government
Fiscinc	Per capita fiscal income (yuan)	ln(Per capita fiscal income)
Institut	Institutional quality at the municipal level	1 = Local cadres are not members of the Municipal Standing Committee; 0 = Otherwise
Hfiscpre	Financial stress on municipal governments	1 = High pressure; 0 = Low pressure
Connect	Link between municipal government and banks	1 = Not connected; 0 = Connected

target and EPU. A significantly positive coefficient would mean that the growth target could mediate the investment-uncertainty sensitivity.

$X_{c,t}$ is a vector of city-level controls involving the natural logarithm of per capita gross domestic product (GDP) (*Pergdp*), economic growth rate (*Growrate*) and the natural logarithm of per capita public finance income (*Fiscinc*). Moreover, as highlighted in our theoretical section, the quality of institutions at the local level also have a significant impact on business operations. To consider variations in institutional quality across China, we refer to recent research that has generated indicators of institutional quality in Chinese city prefectures (e.g., Han et al., 2021; Pan & Fan, 2023; Rodríguez-Pose & Zhang, 2019, 2020). Following Jiang et al. (2019), we employ a dummy variable (*Institut*) that equals 1 if locally born officials are not appointed to serve on the Municipal Standing Committee, and 0 otherwise. The rationale for our institutional quality indicator is that non-locally born officials are less likely to seek rent to distort resource distribution and hinder regional economic performance (Jiang et al., 2019).

The $Z_{i,c,t}$ denotes firm-level controls, including the natural logarithm of total assets (*Asset*), age (*Age*), indicators of export status (*Export*), return on asset (*Roa*) and ownership type. Corporate ownership comprises the

dummy variables of state-owned firms (*State*), privately owned firms (*Private*), foreign-owned firms (*Foreign*), collective-owned firms (*Collective*) and other types of firms (*Other*). The benchmark group is composed of state-owned businesses.

Table 1 presents detailed definitions of the variables. In addition, we include year and firm fixed effects in equation (1) to mitigate the impact of omitted variables. ω_t denotes year fixed effects and captures changes in the nationwide economic environment across different years. As EPU varies from year to year, its effect is absorbed by the year fixed effects and thus, the EPU index is not included in equation (1). κ_i controls for firm fixed effects that do not vary by year.[3] $\varepsilon_{i,c,t}$ denotes the error term. To deal with potential serial correlation and heteroscedasticity, we cluster standard errors at the firm level, as recommended by Bertrand et al. (2004).

4.2. Data sources

Our data on nationwide EPU over time is from Baker et al. (2016), and economic growth targets are manually collected from government work reports. Other data come from the Annual Survey of Industrial Firms (ASIF), and economic growth target data from the China City Statistical Yearbook (CCSY). The National Bureau of Statistics

of China conducts ASIF and CCSY. The detailed information gathering and cleaning process are described below.

4.2.1. Economic policy uncertainty (EPU) index

The China EPU index was developed by Baker et al. (2016) and is based on a scaled frequency count of articles that discuss policy-related economic uncertainty in China. Specifically, the index relies on articles that appeared in the *South China Morning Post*, a prominent English-language newspaper in Hong Kong. To construct the index, Baker et al. first used a text filter to identify articles that contained relevant keywords, such as policy, spending, budget, political, interest rates and reform. They then conducted text analysis to count the number of relevant articles each month and divide this count by the total number of articles published in the same month. This approach enables a measurement of EPU in China over time. However, this index does not vary from city to city.

4.2.2. Economic growth targets

Since the 1990s, some municipal governments have been preparing government work reports and releasing them to the public each year. We manually collect such data from two sources: the portals of the people's governments of prefecture-level cities, which are our primary source, and the statistical yearbook of prefecture-level cities, which includes the cities' growth targets in the 'special issues' chapter. However, we could not find government work reports for several municipal governments before 2000, which limits our analysis to a certain extent. China's top leadership structure changed in 2003, and the new administration placed great emphasis on assessing economic growth, thus resulting in fierce competition among municipal governments. Our final sample period is from 2004 to 2013. We manually collect 2337 observations from 288 cities. Figure 2 presents the average economic growth targets of city governments from 2004 to 2013. Although economic growth targets set by local governments are informal and not enforced by the central government, our collected sample suggests that most Chinese cities have local growth targets. However, as Figure 2 illustrates, we do not collect data for all cities. Fortunately, the missing data are primarily in regions with lower economic activity, such as Tibet, Qinghai, Xinjiang and minority autonomous regions, and therefore, does not significantly impact our results. Our final sample comprises 288 cities, which account for almost all cities in China. Additionally, we include firm fixed effects and city-level economic variables as controls in equation (1) to mitigate selection bias in city-level economic environments.

4.2.3. Annual Survey of Industrial Firms (ASIF)

The ASIF is widely recognised as the most comprehensive and reliable source of granular firm-level data in China. Its extensive use in research on economic and regional questions attests to its significance and usefulness (Brandt et al., 2012). Specifically, the data provide comprehensive operational information on state- and non-state-owned

enterprises of the designed sizes from 1998 to 2013.[4] Accordingly, we apply several criteria to construct the regression sample (Brandt et al., 2012). First, we exclude firms with missing key financial variables. Second, based on general accounting standards, we remove companies whose total assets are less than their current assets and whose profit margin is greater than 1. Then, we delete firms with fewer than 10 employees. Finally, we eliminate the 2010 data because of their low quality. We use the 2004–13 data to match the sample period of the target data. In addition, the corporate net value of fixed assets was absent in 2008 and 2009, and we use the China Taxation Survey to fill in the missing data.

The final sample comprises 1,732,388 observations from 663,975 firms. To mitigate the effect of outliers, we winsorise the continuous variables at the 1% and 99% levels. Panel A of Table 2 reports the descriptive statistics of the firm-level sample. Figure 3 illustrates the average fixed asset investment ratio of corporations within a city from 2004 to 2013. The sample encompasses economic regions from east to west in China, including enterprises in dynamic areas such as coastal cities, and relatively less dynamic areas such as inland cities. The fixed asset investment ratio of corporations varies significantly across regions. The missing data are limited to regions such as Tibet, Qinghai, Xinjiang and minority autonomous regions, where economic activity is relatively lower due to geographical constraints. Therefore, removing these regions from the sample does not significantly impact the empirical results.

4.2.4. China City Statistical Yearbook (CCSY)

The data contain economic data for prefecture-level cities, such as GDP growth rate, GDP per capita, fiscal income and expenditure. We remove missing values. Finally, we obtain 2337 observations from 288 cities. Panel B of Table 2 reports the summary statistics of city-level control variables.

5. EMPIRICAL ANALYSIS

This section measures the effect of economic growth targets on the relationship between investment and EPU. We present the baseline results and magnify the effect using various specifications. First, we separately examine the impact of economic growth targets and EPU on corporate investments. We then investigate the mediating effect of growth targets on investment-uncertainty sensitivity. Finally, we provide further causal evidence using the instrumental variables method.

5.1. Baseline results

Table 3 presents the baseline results. Columns (1) and (2) reveal the influence of EPU on enterprise investment with and without controls. Similar to the findings in the previous literature, we observe that for the coefficients of EPU, both specifications provide consistently negative signs and are statistically significant at the 1% level. In column (2), conditional on other factors, 1 percentage point
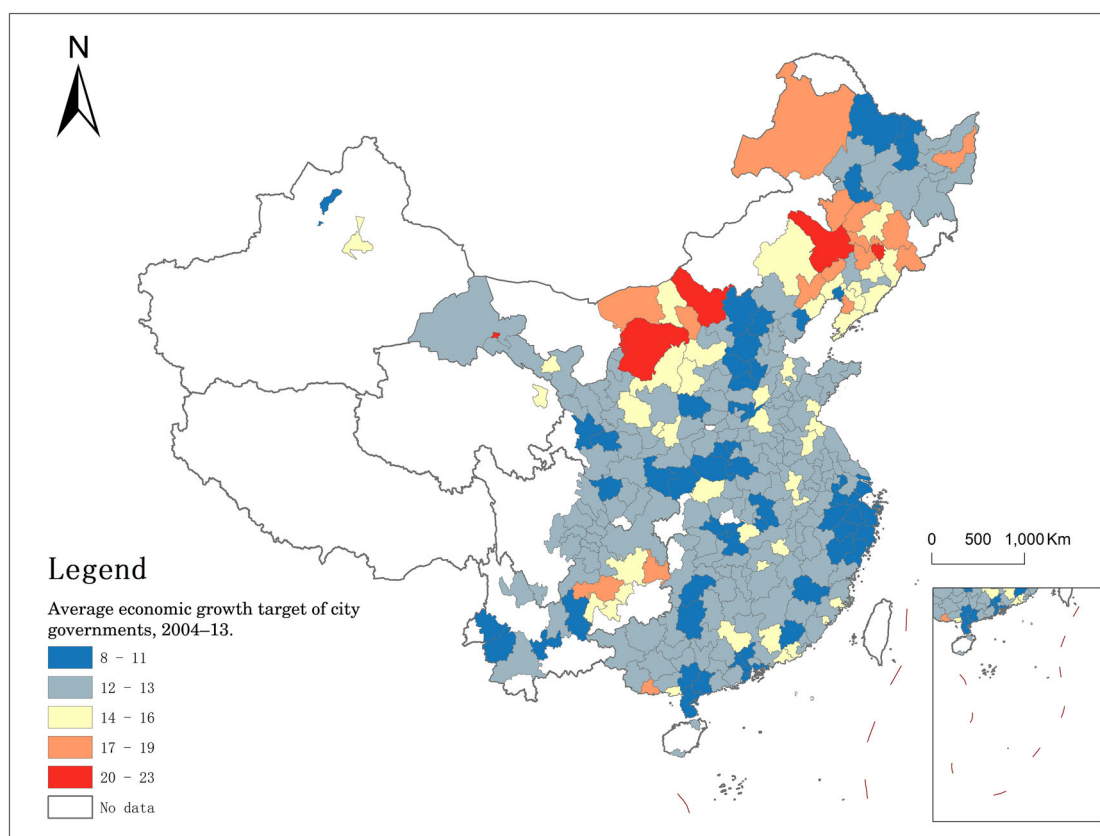
Figure 2. Average economic growth target of city governments, 2004–13.
Source: Data are from the Government Working Report.

increase in EPU is associated with a 0.003 percentage point decline in corporate investment.

Subsequently, we verify the relationship between growth targets and corporate investment. Columns (3) and (4) show that a higher economic growth target is associated with more investment by firms. More importantly, column (4) suggests that when other variables are fixed, one percentage point increase in the city growth target relates to a 0.027 percentage point increase in corporate investment.

Accordingly, we explore the mediating effect of economic growth targets on investment-uncertainty sensitivity. Columns (5) and (6) of Table 3 present the results. According to equation (1), we control for firm and year fixed effects in column (5). Including other control variables does not change the key coefficients of interest quantitatively or qualitatively. The results suggest that the coefficient of the interaction terms was positive and statistically significant at the 1% level, thereby indicating that a growth target could counteract the negative effects of EPU on corporate investment. However, this estimation is not precise enough. We augment the firm- and city-level control variables in column (6). The estimated coefficient remains positive and statistically significant at the 1% level, thus indicating that the results are robust across both specifications. Therefore, to explain the uncertainty–investment relationship in China, we provide one potential explanation from the perspective of local economic governance (Fritsch & Falck, 2007; Fritsch &

Storey, 2014; Johnson & Cathcart, 1979).[5] We offer further evidence in Appendix A in the supplemental data online that the moderating effect of growth targets on investment-uncertainty sensitivity is robust.

Moreover, we use a marginal plot based on the regression results to interpret the mediating effect of economic growth targets on investment-uncertainty sensitivity. Figure 4 displays the average marginal effects of economic growth targets on investment-uncertainty sensitivity at a 95% confidence level. The green lines depict the marginal effects of EPU on corporate investment when the economic growth target takes different values. There are two noteworthy points. First, as the target ranges from 0.025 to 0.330, EPU significantly impacts business investment, further indicating the mediating effect of economic growth targets. Second, as the target increases, the marginal effect of EPU on corporate investment also gradually increases, thus indicating that higher growth targets are usually associated with a larger mediating effect.

5.2. Instrumental variable estimation

Although local governments do not consider firms' investment decisions when setting growth targets, our results may still be biased because of omitted variables and reverse causality. For example, areas with higher investment tend to experience rapid economic growth, which might lead local governments to establish higher economic growth targets. To address this potential endogeneity issue, we use the

Table 2. Summary statistics.

Variables	Observations	Mean	SD	Minimum	Maximum
A: Firm level					
Invest	1,732,388	0.317	0.219	0.008	0.902
Asset	1,732,388	10.315	1.462	4.143	19.427
Age	1,732,388	2.030	0.707	0	3.584
Export	1,732,388	0.432	0.495	0	1
Roa	1,732,388	0.125	0.200	−0.173	0.945
State	1,732,388	0.024	0.153	0	1
Private	1,732,388	0.776	0.417	0	1
Foreign	1,732,388	0.162	0.368	0	1
Collective	1,732,388	0.037	0.188	0	1
Other	1,732,388	0.002	0.044	0	1
Subsidy	1,732,388	0.393	0.488	0	1
Interest	1,659,937	0.010	0.017	0	0.095
Mrpk	1,732,388	0.493	0.500	0	1
Tfp	1,732,388	0.513	0.500	0	1
B: City level					
Growtarg	2337	0.128	0.028	0.025	0.330
Pergdp	2337	10.013	0.764	4.595	13.056
Growrate	2337	0.132	0.036	−0.194	0.377
Fiscinc	2337	8.455	0.990	5.190	12.187
Institut	2337	0.720	0.449	0	1
Hfiscpre	2337	0.540	0.498	0	1
Unconnec	2337	0.944	0.230	0	1
C: Nationwide level					
EPU	9	1.292	0.654	0.668	2.354

Source: Annual Survey of Industrial Firms and China City Statistical Yearbook from 2004 to 2013.

number of prefecture-level cities in a province as an instrumental variable for the growth target of the municipal government. The idea is that the number of prefecture-level cities in a province is exogenous to corporate investment but is correlated with the growth target of the municipal government through official promotion tournaments.

Prefecture-level cities in China were mainly established during the 1970s. There are four main ways to establish prefecture-level cities. The first (and most common in China) is transforming from a prefecture-level administrative region to a prefecture-level city. The second is promotion from a county-level administrative region to a prefecture-level city. The third is separating from part of the county-level administrative regions under the jurisdiction of the original prefecture-level administrative region. Finally, prefectures and prefecture-level cities, where the prefecture administrative office and prefecture-level municipal government are in one central city, are merged into one prefecture-level city. In conclusion, the number of prefecture-level cities is primarily driven by administrative power, which is exogenous and cannot directly influence corporate investment decisions.

Regionally decentralised authoritarianism is the institutional foundation underlying the Chinese growth miracle (Fukuyama, 2011; Weingast, 1995; Xu, 2011). It is characterised by highly centralised political power and highly decentralised administrative and economic power. Local politicians are incentivised through promotion tournaments, where they compete to boost economic growth and improve their chances of promotion (Li & Zhou, 2005). Furthermore, the promotion of city officials often depends on their superiors in the provincial government. Thus, the greater the number of prefecture-level cities in a province, the higher the promotion pressure faced by prefecture-level city officials. Economic growth targets are an ex-ante guideline for regional economic development, and are positively correlated with ex-post economic growth (Li et al., 2019). To meet targets, municipal government officials facing higher promotion pressure due to the presence of more peers set higher economic growth targets and allocate resources accordingly. Therefore, a larger number of prefecture-level cities in a province is associated with higher economic growth targets for municipal governments.

The number of prefecture-level cities in a province collectively adheres to the standards of the instrumental variable. Specifically, the number of prefecture-level cities in a
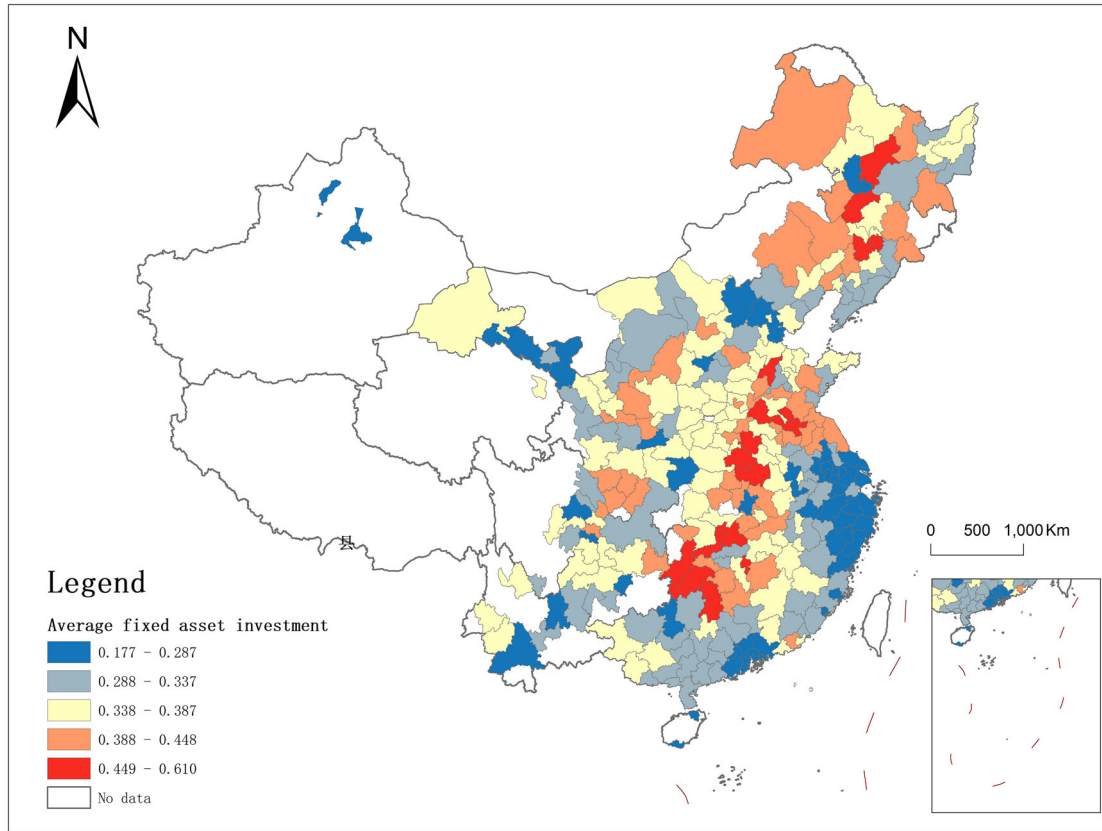
Figure 3. Average corporate fixed asset investment ratio of the city from 2004 to 2013.
Source: Data are come from the Annual Survey of Industrial Firms.

province (*Ivnumber*) is used as an instrumental variable for the endogenous variable (*Growtarg*). In addition, we use the interaction term between the number of prefecture-level cities in a province and EPU as an instrumental variable for endogenous interaction terms (*EPU × Growtarg*). We then conduct the first- and second-stage regressions:

$$Growtarg_{c,t} = \alpha_0 + \alpha_1 Ivnumber_{p,t} + \alpha_2 Ivnumber_{p,t}$$
$$\times EPU_{t-1} + \beta X_{c,t} + \delta_c + \nu_t + \varepsilon_{c,t} \quad (2)$$

$$interact_{c,t} = \rho_0 + \rho_1 Ivnumber_{p,t} + \rho_2 Ivnumber_{p,t}$$
$$\times EPU_{t-1} + \beta X_{c,t} + \delta_c + \nu_t + \varepsilon_{c,t} \quad (3)$$

$$Invest_{i,c,t} = \beta_0 + \beta_1 \widehat{Growtarg}_{c,t} + \lambda \widehat{interact}_{c,t}$$
$$+ \beta_2 X_{c,t} + \beta_3 Z_{i,c,t} + \omega_t + \kappa_i + \varepsilon_{i,c,t} \quad (4)$$

where the subscript p denotes the province. The $interact_{c,t}$ is the interaction term between the growth target and EPU, and δ_c represents the city fixed effect. Equations (2) and (3) are first-stage regressions used to obtain the predicted values of the growth target ($\widehat{Growtarg}_{c,t}$) and interaction term ($\widehat{interact}_{c,t}$). Equation (4) is the second-stage regression, which employs the predicted value obtained from equations (2) and (3) as new regressors. The meanings of the remaining variables are the same as those in the previous section.

Table 4 presents the instrumental variable estimation. The first two columns display the results of the

first-stage regression, which reveal a statistically significant positive relationship between the instrumental variable and its corresponding endogenous variable. Furthermore, the *F*-statistic of the two specifications exceeds 10, thus indicating that the instrument is strong.[6] The strong first-stage relationship is consistent with our theoretical expectations. We then employ the predicted value of the endogenous variable to run a second-stage regression based on equation (4). Columns (3) and (4) of Table 4 show that the coefficient of the interaction term is positive and statistically significant at the 1% level with or without controls. The instrumental variable estimation provides additional evidence for the mediating effect of growth targets on investment-uncertainty sensitivity.

The instrumental variable estimation results further suggest that the moderating effect represents a causal relationship.

6. LOCAL GROWTH TARGET AS A DOUBLE-EDGED SWORD

We have discovered the moderating effect of growth targets on the relationship between EPU and corporate investment. Nevertheless, how the discretionary policy target generates a moderating effect and the potential economic consequences remain unsolved, and we investigate as follows.

Table 3. Mediating effect of growth target on investment-uncertainty sensitivity.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable: *invest*						
EPU	−0.016***	−0.003***				
	(0.000)	(0.000)				
Growtarg			0.018*	0.027**	0.067***	0.080***
			(0.011)	(0.011)	(0.012)	(0.012)
EPU × Growtarg					0.204***	0.206***
					(0.013)	(0.013)
Institut		0.005***		0.009***		0.009***
		(0.001)		(0.001)		(0.001)
Other controls	No	Yes	No	Yes	No	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes	Yes	Yes
Observations	1,735,191	1,732,388	1,735,191	1,732,388	1,735,191	1,732,388
R^2	0.709	0.712	0.715	0.717	0.715	0.717

Note: The dependent variable is the net value of fixed assets divided by total assets. Columns (1) and (2), and (3) and (4) display the independent effect of economic policy uncertainty (EPU) and economic growth target, respectively, whereas columns (5) and (6) report their interacting effects. Firm-level controls include the natural logarithm of assets and age, export status, return on assets, and indicators of ownership type. City-level controls are the natural logarithm of gross domestic product (GDP) per capita, growth rate, fiscal income and institutional quality. Firm and year fixed effects are also considered. Standard errors clustered at the firm level are shown in parentheses. *$p < 0.10$; **$p < 0.05$; and ***$p < 0.01$.
Source: Annual Survey of Industrial Firms and the China City Statistical Yearbook from 2004 to 2013.

6.1. Mechanisms: effectiveness of two types of local target policies

According to real options literature, firms' operational risk rises as EPU increases. Firms may experience cash flow instability and liquidity shortages, causing them to defer investment projects (Bloom et al., 2007; Dixit & Pindyck, 1994; Gulen & Ion, 2016). Our findings suggest that the government growth targets significantly moderate the EPU–investment relationship. Based on real options theory predictions and the institutional foundations of growth targets, we propose that local policies can ease the uncertainty of corporate cash flow and liquidity shortages, thereby reversing the negative impact of EPU on investment.
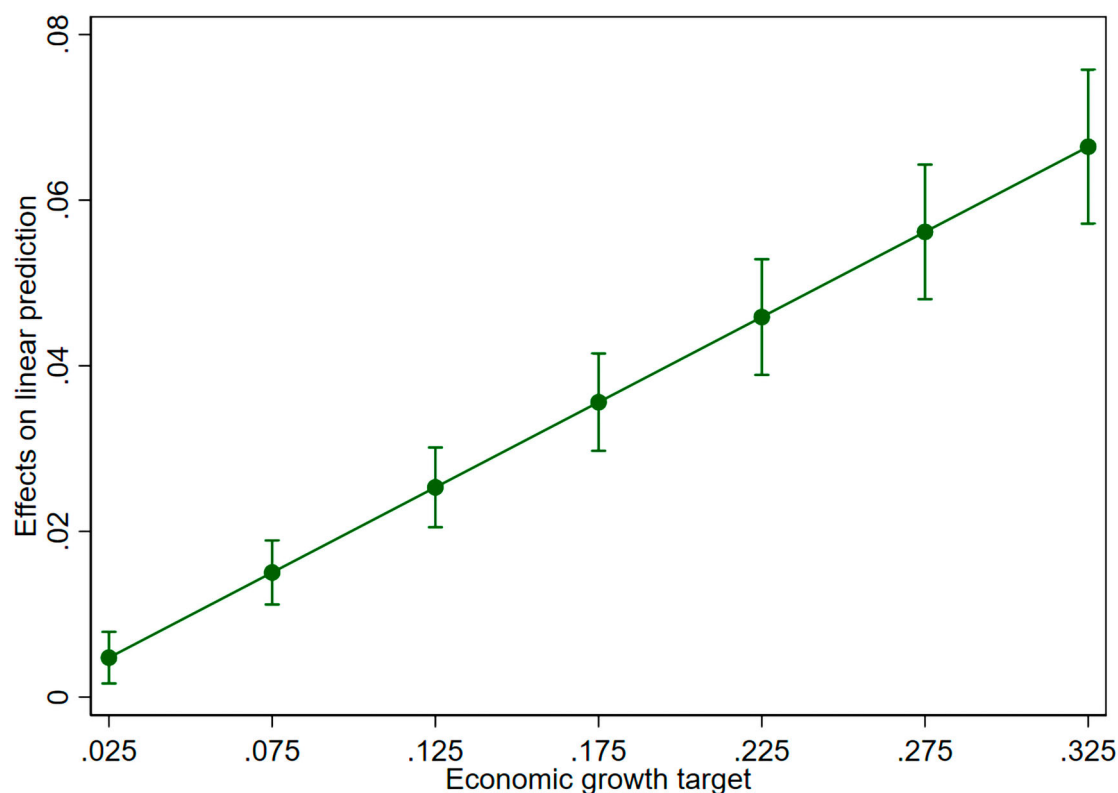

Figure 4. Average marginal effects of economic growth target on investment-uncertainty sensitivity with 95% confidence level.

Table 4: Instrumental variable estimation.

	First-stage		Second-stage	
	(1)	**(2)**	**(3)**	**(4)**
Dependent variables:	*growtarg*	*interact*	*invest*	
lvnumber	0.021***	0.025***		
	(0.002)	(0.002)		
lvnumber×EPU	0.004***	0.006***		
	(0.000)	(0.000)		
growtarg_hat			0.283***	0.245***
			(0.038)	(0.038)
interact_hat			0.140***	0.158***
			(0.013)	(0.013)
Other controls	Yes	Yes	No	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	1,265,751	1,265,751	1,265,751	1,265,751
R^2	0.721	0.440	0.699	0.700
F-statistic	2853.75	704.48		

Note: The dependent variables in columns (1) and (2) are individual growth targets and their interaction with EPU. The instrumental variable is the number of prefecture-level cities within the province. Columns (3) and (4) display the second-stage results, estimated based on equation (4), in which endogenous variables are replaced by their predicted values from the first-stage estimation. The city- and firm-level controls are the same as those in Table 3. City, firm and year fixed effects are also considered. Standard errors clustered at the city level in columns (1) and (2) and at the firm level in columns (3) and (4) are shown in parentheses. *$p < 0.10$; **$p < 0.05$; and ***$p < 0.01$.
Source: Annual Survey of Industrial Firms and the China City Statistical Yearbook from 2004 to 2013.

6.1.1. Fiscal subsidies

Target-directed policy measures include fiscal policies such as financial subsidies (Howell, 2017). Meanwhile, the government provides additional cash flows to firms through subsidies, which may alleviate financial constraints and liquidity issues in an uncertain macroeconomic environment. We investigate whether the moderating effect of growth targets is heterogeneous across different government finance statuses.

To explore heterogeneity, we define an indicator of fiscal pressure on city governments ($Hfiscpre_{c,t}$). The fiscal expenditure-to-revenue ratio indicates fiscal stress (Oates, 1985). We use $Hfiscpre_{c,t}$, a dummy variable equal to 1 if the fiscal pressure ratio of city c is more than the median in year t, which denotes high-fiscal-stress regions, and 0 otherwise. Columns (1) and (2) of Table 5 present the results. We control for firm and year fixed effects in column (1). The coefficient of the interaction in terms of EPU, growth target and fiscal pressure status is negative and statistically significant at the 1% level. In column (2), we augment the firm- and city-level control variables, to improve accuracy. The key coefficient remains negative and statistically significant at the 1% level, thus indicating that the moderating effect of growth targets is smaller in areas with poor fiscal conditions. It implies that public financial capacity can support target-directed policies that mitigate the negative impact of EPU on investment.

Furthermore, we confirm the existence of a firm-level financial subsidy channel. We build a dummy variable ($subsidy_{i,c,t}$) that equals 1 if firm i receives a government

subsidy, and 0 otherwise. The results in columns (3) and (4) of Table 5, using the same setting as in equation (1), show a positive and statistically significant coefficient of the interaction terms at the 1% level, thus indicating that firms located in regions with higher growth targets are more likely to receive fiscal subsidies when the macro-business environment is highly unpredictable. These findings confirm that fiscal subsidies play a vital role in the moderating effect of growth targets on EPU–investment sensitivity.

6.1.2. Allocation of financial resources

Controlling the allocation of financial resources is another potential target-directed policy tool (Cong et al., 2019). Studies have revealed that EPU exacerbates financial friction and raises financing costs, thus resulting in a lower return on investment and a decrease in corporate investment (Bradley et al., 2016; Christiano et al., 2014). Therefore, we expect local governments to manipulate credit resource allocation to realise the growth target's moderating function. Specifically, we examine whether the growth target's moderating effect is concentrated in locations with stronger control over credit resources.

However, we are unaware of any way to measure municipal government to deployment of credit resources. In the same way that corporate political connections are identified, we check if local government officials hold bank positions as a way to quantify local governments' potential to intervene in credit resource allocation.[7] We define a dummy variable ($Unconnec_{c,t}$) as equal to 1 if cadres in city c and year t are not employed in local banking

Table 5. Government subsidy channel.

	(1)	(2)	(3)	(4)
Dependent variables:	*invest*		*subsidy*	
Growtarg	0.127***	0.161***	0.632***	−0.135***
	(0.015)	(0.016)	(0.027)	(0.024)
Hfiscpre	−0.006***	−0.007***		
	(0.001)	(0.001)		
EPU × Growtarg	0.271***	0.334***	1.212***	0.513***
	(0.019)	(0.020)	(0.030)	(0.026)
Hfiscpre × Growtarg	−0.114***	−0.135***		
	(0.021)	(0.022)		
EPU × Hfiscpre	0.002***	0.003***		
	(0.001)	(0.001)		
EPU × Growtarg × Hfiscpre	−0.172***	−0.281***		
	(0.025)	(0.026)		
Other controls	No	Yes	No	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	1,735,191	1,732,388	1,732,388	1,732,388
R^2	0.715	0.717	0.694	0.736

Note: In columns (1) and (2), the dependent variable is the net value of fixed assets divided by total assets, while a dummy variable for government subsidies is in the remaining columns. The city- and firm-level controls are the same as those in Table 3. Firm and year fixed effects are also considered. Standard errors clustered at the firm level are shown in parentheses. *$p < 0.10$; **$p < 0.05$; and ***$p < 0.01$.
Source: Annual Survey of Industrial Firms and the China City Statistical Yearbook from 2004 to 2013.

Table 6. Financing costs channel.

	(1)	(2)	(3)	(4)
Dependent variables	*invest*		*interest*	
Growtarg	0.276***	0.373***	−0.023***	−0.016***
	(0.088)	(0.090)	(0.001)	(0.001)
Connect	0.011***	0.010***		
	(0.003)	(0.003)		
EPU × Growtarg	0.163*	0.422***	−0.033***	−0.029***
	(0.084)	(0.086)	(0.001)	(0.001)
Unconnec × Growtarg	−0.251***	−0.332***		
	(0.075)	(0.075)		
EPU × Unconnec	0.006**	0.006**		
	(0.003)	(0.003)		
EPU × Growtarg × Unconnec	−0.022	−0.261**		
	(0.121)	(0.125)		
Other controls	No	Yes	No	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	1,735,191	1,732,388	1,648,984	1,648,984
R^2	0.496	0.497	0.681	0.686

Note: In columns (1) and (2), the dependent variable is the net value of fixed assets divided by total assets, while interest expense divided by operating revenue is the dependent variable in the remaining columns. The city- and firm-level controls are the same as those in Table 3. Firm and year fixed effects are also considered. Standard errors clustered at the firm level are shown in parentheses. *$p < 0.10$; **$p < 0.05$; and ***$p < 0.01$.
Source: Annual Survey of Industrial Firms and the China City Statistical Yearbook from 2004 to 2013.

institutions, indicating no direct connection between local governments and banks, and 0 otherwise. We discover that during the sample period, approximately 6% of the regions had officials working in banks. Column (1) of Table 6 shows that the coefficient of the interaction terms of EPU, growth target, and government–bank connection is negative and insignificant. A possible reason is that the confounding variables are not controlled for in column (1), which leads to a faulty statistical inference. In our preferred model in column (2), the estimated coefficient remains negative and statistically significant at the 5% level, thereby indicating that the moderating effect of growth targets on the EPU–investment relationship is more concentrated in regions whose officials hold a position in banks. These findings highlight that local governments can moderate growth targets by allocating credit resources.

Moreover, we test the credit channel at the firm level. We use interest payments on the operating income ratio as a proxy for firms' financing costs ($interest_{i,c,t}$). The results are in columns (3) and (4) of Table 6. Column (3) controls for firm and year fixed effects. The coefficient of the interaction terms is negative and statistically significant at the 1% level. Column (4) adds more control variables and shows that the significance level of the estimated coefficient remains intact, thus suggesting that when EPU is severe, larger growth targets are associated with lower corporate financing costs. Thus, the credit channel is essential for the mediating effect of growth targets.

6.2. Other effects of local economic growth target setting

Growth targets are a crucial moderator of the EPU–investment relationship. As target-directed policy tools impact market resource allocation, it is worth considering whether the moderating effect of growth targets generates any misallocation.

We follow Hsieh and Klenow (2009) to examine whether high-productivity firms invest more when the negative effect of EPU on investment is reduced by having local economic growth targets. If so, the growth target's moderating effect would not cause misallocation, but it

Table 7. Economic implications of the moderating effects.

	(1)	(2)	(3)	(4)
Dependent variable: *invest*				
Growtarg	0.207***	0.225***	0.156***	0.164***
	(0.015)	(0.015)	(0.015)	(0.015)
EPU × Growtarg	0.308***	0.297***	0.260***	0.249***
	(0.017)	(0.017)	(0.017)	(0.017)
Mrpk	−0.095***	−0.104***		
	(0.000)	(0.000)		
Mrpk × Growtarg	−0.147***	−0.213***		
	(0.017)	(0.017)		
EPU × Mrpk	0.011***	0.011***		
	(0.001)	(0.001)		
EPU × Growtarg × Mrpk	−0.115***	−0.164***		
	(0.021)	(0.021)		
Tfp			−0.052***	−0.056***
			(0.000)	(0.000)
Tfp × Growtarg			−0.038**	−0.082***
			(0.017)	(0.017)
EPU × Tfp			0.020***	0.021***
			(0.001)	(0.001)
EPU × Growtarg × Tfp			−0.019	−0.058***
			(0.021)	(0.021)
Other controls	No	Yes	No	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	1,735,191	1,732,388	1,735,191	1,732,388
R^2	0.731	0.735	0.721	0.723

Note: The dependent variable is the net value of fixed assets divided by total assets. The city and firm-level controls are the same as those in Table 3. Firm and year fixed effects are also involved. Standard errors clustered at the firm level are shown in parentheses. *$p < 0.10$; **$p < 0.05$; and ***$p < 0.01$.
Source: Annual Survey of Industrial Firms and the China City Statistical Yearbook from 2004 to 2013.

would, if not. Specifically, we employ the average revenue products of capital to approximate the marginal product of capital, which equal the ratio of gross output value to capital stock ($Mrpk_{i,c,t}$).[8] To reduce measurement errors, we use $Mrpk_{i,c,t}$, a dummy variable equal to 1 if firm i's marginal product of capital in year t exceeds its median, and 0 otherwise. Ideally, firms with higher marginal product of capital would invest more, and result in equal marginal product of capital. Columns (1) and (2) of Table 7 indicate that the outcomes do not conform to the theoretical predictions. In both specifications, the coefficient of the interaction term of EPU, growth target, and marginal revenue products of capital is negative and statistically significant at the 1% level. The results reveal that while growth targets can mediate the impact of EPU on investment, firms with large marginal product of capital invest less, thus lowering resource allocation efficiency.

As columns (3) and (4) of Table 7 reveal, we repeat similar tests using total factor productivity ($Tfp_{i,c,t}$). The measure is the residual of an equation in which the value of real corporate output is regressed on labour and capital inputs. Furthermore, Tfp is a dummy that equals 1 if the firm i's total factor productivity exceeds the median in year t, and 0 otherwise. Columns (3) and (4) of Table 7 display the results, further confirming inefficient investment allocation. The estimated coefficient in column (3) is negative but insignificant. However, in a more precise specification, column (4) shows that the core regression coefficient remains negative and statistically significant at the 1% level. In summary, growth targets result in less efficient corporate investments to mitigate the negative effects of EPU.

7. CONCLUSIONS

In the post-COVID-19 period, regions still face many new challenges with much political uncertainty (Bailey et al., 2021). Moreover, in developing countries, local businesses face opaque policies and laws, which may exacerbate EPU. Based on China's practices, our findings suggest that local economic growth targets are a potential moderator of the EPU–investment relationship.

Our baseline results show that growth targets can reduce the detrimental effects of EPU on corporate investment and local business performance. The estimated coefficient of the interaction term between growth targets and EPU is positive and statistically significant at the conventional level. Moreover, our findings are robust to various metrics of EPU, business investment, using an instrumental variable approach.

More importantly, analyses reveal potential mechanisms underlying the mediating effect. Specifically, the mediating effect of growth targets is more concentrated in regions with lower fiscal pressure. Firm-level evidence shows that a higher growth target implied that more firms obtained subsidies when EPU was high. Moreover, local government growth targets are backed by local government finance, which bring additional cash flow to firms during EPU. Bank credit is also used to help meet

the growth targets. Furthermore, the growth targets in regions with government–bank connections have a more significant moderating effect than those in other locations. A higher growth target is associated with lower interest rate expenditure for firms facing higher EPU. Owing to lower financing costs, enterprises increase investment in an uncertain policy environment.

Finally, we identify efficiency implications. Although the local growth target is a positive mediator of the EPU–investment relationship, this process can result in reduced efficiency because of investment misallocation. These findings raise concerns about the possibility of efficiency loss due to the mediating effect of the local economic growth target.

Overall, we provide an alternative explanation that economic growth target management can reverse the dampening effect of EPU on corporate investment. Building on the global attention given to regional policy design in the post-COVID-19 period (McCann et al., 2021b), our findings provide the novel insight that formal and long-standing growth targets at all territory levels could guide public expectations and boost local business performance when EPU increases.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

NOTES

1. In the empirical analysis, we follow Baker et al. (2016) to construct the EPU index and Huang and Luk (2020) for the robustness check. Baker et al. (2016) constructed indices to quantify economic uncertainty related to policy decisions using the frequency of newspaper coverage. The objective is to measure uncertainty regarding who will be responsible for making economic policy decisions, what actions will be taken and when, and the possible economic

outcomes resulting from these actions or inactions. The measurements account for uncertainties concerning both immediate and long-term concerns, as depicted in the newspaper articles. Additionally, the indexes encompass uncertainties concerning non-economic policy matters that may have economic consequences.

2. In the later analysis, we also assign the weights 1/78, 2/78 … 12/78 to the 12 months of each year and calculate the yearly index to test for robustness.

3. Since businesses are located in the municipal district, the firm fixed effect also includes the city fixed effect, which can absorb the long-term institutional quality that does not change over time (Jiang et al., 2019; Wang et al., 2021).

4. The designed sizes are that corporate business income is more than 5 million yuan before 2011 and 20 million yuan after 2011. Moreover, because the standard of industrial classification varied during the sample period, we unified the classification using the National Industries Classification System (GB/T 4754-2002). The ASIF does not publish new data, so our analysis only covers the period up to 2013. Although the ASIF is well-represented, there is still concern about external validity based on historical data. However, if the mediating effect of economic growth targets remains in the long term, the concern about external validity is not substantiated. Appendix A in the supplemental data online follows the approach of Dell et al. (2012) to reconstruct our data sample and show that the effects are persistent.

5. Additionally, we could find that the coefficients of institutional quality are significantly positive in columns (2), (4) and (6). In other words, better institutional quality could attract more corporate investment, consistent with previous literature on institutional quality.

6. As stated by Angrist and Pischke (2009), no standard method tests the validity of instrumental variables. However, a common rule of thumb is to set the F-statistic threshold at 10 to check for the presence of the weak instrument issue. A high F-statistic suggests that the instrument is strong and can be used to accurately estimate the causal relationship.

7. The bank information is from the Chinese Research Data Services Platform. The municipal government officials include those employed in the Development and Reform Bureau, Municipal State-owned Assets Supervision and Administration Commission, the Finance, Audit, Forestry, Supervision, Public Security, Civil Affairs, and Price Bureaus and the Bureau of Labor and Social Security.

8. The wedge between the two is factor share and the elasticity of product substitution. Because we include firm fixed effects in the specification, the two parameters are absorbed. Capital stock is calculated using the perpetual inventory method (Brandt et al., 2012).

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