"Impact of economic policy uncertainty on audit fees: Evidence from Chinese listed companies"

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
71	1	9

BUSINESS PERSPECTIVES

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IMPACT OF ECONOMIC POLICY UNCERTAINTY ON AUDIT FEES: EVIDENCE FROM CHINESE LISTED COMPANIES

Abstract

High economic policy uncertainty in China amplifies operational risks and managerial pressure for businesses while driving the demand for independent audits. However, previous studies have paid limited attention to the impact of economic policy uncertainty on audit fees. This study aims to examine the impact of economic policy uncertainty on audit fees and to test whether the internal control quality will moderate this association at the firm level. This study employs the economic policy uncertainty index to measure uncertainty. The paper examines 3,469 Chinese A-share listed companies from 2007 to 2020, using STATA 17 for fixed-effects regression on panel data. The results show a robust positive association between economic policy uncertainty and audit fees ($\beta = 0.0302$, $p < 0.001$). However, this association is weaker for companies with better internal control quality ($\beta = -0.0229$, $p < 0.001$), suggesting that effective internal controls can mitigate the impact of economic policy uncertainty on audit fees. Furthermore, the findings indicate that this positive association is weaker for state-owned companies compared to non-state-owned companies ($\beta = -0.0170$, $p < 0.001$). At the same time, the study does not establish a significant difference in the positive association between TOP 10 and non-TOP 10 accounting firms. This study examines the adverse effects of economic policy uncertainty from the perspective of audit fees. The results have implications for stakeholders, including the need for companies to establish effective internal controls and good government-business relationships and for governments to reduce economic policy uncertainty and increase transparency in their policies.

Keywords	economic policy uncertainty, audit fees, audit decisions, internal control quality, accounting firms
JEL Classification	E60, M41, M42

INTRODUCTION

Economic policy uncertainty (EPU) concerns have intensified after the Global Financial Crisis (Baker et al., 2016). The crisis significantly impacted the global economy, leading to market volatility and a worldwide economic downturn (Singhania & Anchalia, 2013). In response to the crisis, governments worldwide implemented policies to intervene in their economies, resulting in the highest level of EPU, and China was no exception. The Chinese government intervened in the economy through various policies, including the four trillion yuan stimulus plan (Chen et al., 2018). However, market economies' rapidly changing information often makes it challenging for the government to make accurate judgments, resulting in lagging decision-making and frequent policy adjustments (Gulen & Ion, 2016).

The importance of uncertainty in economic decisions is more pronounced than ever in the interconnected world (Al-Thaqeb & Algharabali, 2019). For instance, EPU increases business risks, increases the likelihood of managerial misconduct, and raises the de-

mand for independent audits, thereby impacting audit decisions. Some literature has examined the impact of economic policy uncertainty on audit pricing (Zhang et al., 2018), audit effort (Yun & Chun, 2021), and audit decision-making (Hoang, 2022). However, there is limited research in China, with little consideration for the moderating role of internal controls and a lack of heterogeneity analysis between state-owned and non-state-owned enterprises.

1. LITERATURE REVIEW AND HYPOTHESES

Economic policy uncertainty has opened new research areas. Previous studies focused mainly on the macro-level effects of economic policy uncertainty (EPU), such as its impact on household consumption (Bernanke, 1983; Eberly, 1994), investment (Bernanke, 1983; Bloom, 2009; Pastor & Veronesi, 2012), overall economy (Foote et al., 2000), business cycle (Bloom, 2014), employment (Bloom, 2014), inflation (Leduc & Liu, 2016), and election cycle (Julio & Yook, 2012). However, in recent years, there has been a growing interest in the impact of EPU on the micro-economy, such as its effects on corporate investment (Wang et al., 2014) and fixed asset investment (Fried & Hisrich, 1994). Economic policy uncertainty can have a negative impact on the economic environment (Al-Thaqeb & Algharabali, 2019).

While researchers have started to focus on the micro-level impacts of economic policy uncertainty, they have seldom considered a factor influencing audit fees. Some scholars believe client characteristics are essential factors affecting audit fees (Davis et al., 1993; Hackenbrack & Knechel, 1997; Hackenbrack & Hogan, 2005; Palmrose, 1986; Simunic, 1980). Auditors' market strategy, such as low price, also can affect audit fees (DeAngelo, 1981; Hay & Jeter, 2011; Palmrose, 1986; Simon & Francis, 1988; Simunic, 1980, 1984). Moreover, audit market structure should be considered when studying audit fees (Christiansen & Loft, 1992; Griffin & Lont, 2007; Hoitash et al., 2008; Pong & Burnett, 2006). Most research on the factors affecting audit fees focuses on the micro level, and the early literature does not study macro factors such as economic policies.

In recent years, economic policy uncertainty has emerged as a research hotspot, prompting scholars to investigate its impact on audit fees. Firstly, economic policy uncertainty increas-

es business operational risks (Mirza & Ahsan, 2020), leading to declining business performance (Rjiba et al., 2020). Managers may be motivated to manipulate financial statements to secure high rewards and meet profit expectations (Rezaee, 2005). Auditors must perform more audit procedures and expand the scope to mitigate audit risk. Additionally, higher operational risks increase the probability of corporate bankruptcy (Brennan & Schwartz, 1978). Coupled with the opportunistic motives of managers, this raises the possibility of financial statement fraud, thereby increasing the litigation, regulatory, and reputational risks faced by accounting firms and auditors (Jian et al., 2023). Secondly, economic policy uncertainty increases auditors' difficulty in predicting and supervising managerial behavior (Xie et al., 2022). Auditors need a reduced likelihood of detecting related-party transactions, exacerbating the agency problem within companies (Hung & Cheng, 2018). Managers are more likely to manage earnings to conceal their opportunistic behavior (Jian et al., 2023), increasing their incentive for manipulation. Auditors need to allocate more resources, spend more time, and exert more effort in verifying the financial statements of the audited entity (Mitra et al., 2007).

As an essential risk resistance mechanism, internal control has become a key factor in investigating audit decisions in recent years. Internal controls are accounting and auditing processes that ensure financial reporting integrity and regulatory compliance in a company's finance department (Feng et al., 2009; Spira & Page, 2003). Results show that lower internal control quality is associated with higher audit fees and an increased likelihood of auditor change (Asare et al., 2013). The disclosure of internal control weakness is associated with higher audit fees (Chen et al., 2014). Firms revealing internal control deficiencies for the pre-IPO period will likely pay higher IPO audit fees, implying that

auditors revise audit fees in response to higher internal control risk (Lee, 2018). Also, Mazza and Azzali (2018) report a negative association between internal control quality and audit fees.

Research on the impact of economic policy uncertainty on audit fees lacks the consideration of internal control. Feng et al. (2009) examined the association between the quality of internal control and the accuracy of management guidance, while Altamuro and Beatty (2010) investigated the financial reporting effects of the internal control provisions of the Federal Depository Insurance Corporation Improvement Act (FDICIA). Alabdullah and Maryanti (2021) discussed internal control mechanisms in accounting, management, and the economy. Other studies have shown that a better quality of internal control can narrow the scope of substantive tests, reduce audit time, and lead to auditing of human capital investment, thus increasing auditor trust (Simunic, 1980). Therefore, internal control is an essential mechanism within firms that can play a crucial defensive role in managing external risks such as economic policy uncertainty. Further research is necessary to explore the relationship between internal control and its impact on the relationship between economic policy uncertainty and audit fees.

Studies on the impact of economic policy uncertainty on audit fees need more heterogeneity analysis of the nature of equity. Compared to non-state-owned enterprises (non-SOEs), state-owned enterprises (SOEs) bear greater social responsibilities and have easier access to bank loans, government subsidies, and tax incentives (Lin et al., 2020). They are also more likely to receive government assistance, even during near-bankruptcy (Chen et al., 2008). Additionally, SOEs often have stronger government-business relationships (Yang & Nahm, 2023), making them more likely to have advanced knowledge of changes in economic policies. As a result, SOEs have lower operational risks and are less affected by the operational risks arising from economic policy uncertainty. Therefore, economic policy uncertainty less impacts SOEs' audit fees than non-SOEs. The previous literature on the association between economic policy uncertainty and audit fees must consider heterogeneity. Therefore, it is valuable to investigate the similarities and differences between SOEs and non-SOEs in this study.

Finally, there is little empirical evidence from China in the research on the impact of economic policy uncertainty on audit fees. A few scholars have analyzed the relationship between EPU and audit fees in the Chinese context. For instance, Wang and Zhu (2022) studied the impact of EPU on abnormal audit fees. China has high economic policy uncertainty (Zhao & Wang, 2022), which means the systemic risk of the company's operation is high. The Chinese government has significantly emphasized internal controls for listed companies in recent years. For instance, the Chinese government introduced the "Basic Standards for Enterprise Internal Control" in 2008, initially implemented in listed companies. The association between EPU and audit fees in the Chinese context, especially the role of internal control, needs to be further explored.

Therefore, this study aims to investigate how economic policy uncertainty affects audit fees in the context of China's institutional background, considering the moderating role of internal control. Furthermore, this study seeks to clarify the differences in the impact of economic policy uncertainty on audit fees between state-owned and non-state-owned enterprises and large and small accounting firms (Figure 1). Based on this, the paper proposes four hypotheses:

H1:   *Economic policy uncertainty is positively associated with audit fees.*

H2:   *Effective internal control can mitigate the impact of economic policy uncertainty on audit fees.*

H3:   *The association between economic policy uncertainty and audit fees is more pronounced for non-state-owned than for state-owned enterprises.*

H4:   *There is no significant difference in the association between economic policy uncertainty and audit fees for the TOP 10 accounting firms compared to non-TOP 10 accounting firms.*
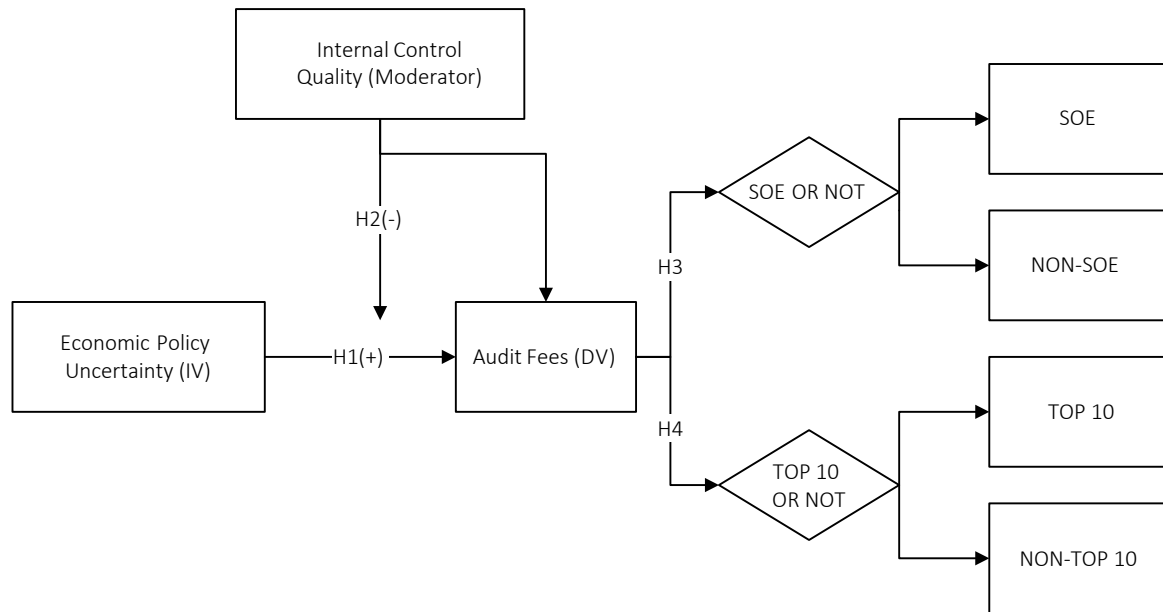
Note: Independent variable (IV): economic policy uncertainty; Dependent variable (DV): audit fees; Moderating variable (Moderator): internal control quality; Grouping variables: SOE or not; TOP 10 accounting firms or not.

Figure 1. Research framework

2. METHODS

This study uses Chinese A-share listed companies from 2007 to 2020 as the population and selects samples based on the following principles:

1) Financial and insurance companies were excluded from the study due to their use of different accounting standards and the incomparability of financial data between these entities and non-financial companies.

2) ST (special treatment) and PT (particular transfer) companies were excluded from the study due to the abnormal operation of such listed companies and special treatment by the China Securities Regulatory Commission (CSRC).

3) The analysis eliminated the companies with missing data.

The above screening obtained 24,619 observations of 3469 companies during 14 years (Table 1 and Table 2).

The EPU index was jointly released by Stanford University and the University of Chicago (Gulen & Ion, 2016). This index constructs a scaled frequency count of articles about policy-related economic uncertainty in the South China Morning Post (SCMP), Hong Kong's leading English-language newspaper. It follows news-based indexes of economic policy uncertainty for the United States and other countries. Since the financial data of listed companies used in this paper are annual, while the primary EPU index is monthly data, for data consistency, this paper follows the approach outlined by Kang et al. (2014) to convert the monthly index into annual index, and the specific methods are as follows:

Table 1. Sample selection procedure

Initial observations from 2007 to 2020	40,123
Drop observations about the banking, insurance, and other financial industries	(443)
Eliminate observations who issue shares to foreign investors (termed B-shares or H-shares)	(250)
Eliminate the companies with missing data	(4,453)
Drop observations whose transaction status is ST, *ST, or PT	(1,648)
Eliminate observations whose data required to measure firm-specific control variables are not available	(8,710)
Remaining firm-year observations	24,619

Table 2. Sample distribution by year and industry

Industry codes	2007	2008	2009	2010	2011	2012	2013	2014	2016	2017	2018	2019	2020	%	Total
A	15	15	20	19	24	22	22	20	28	25	26	24	29	1.17	289
B	15	19	23	24	36	41	41	45	44	46	52	57	46	1.99	489
C	458	654	765	893	823	884	1,188	1,270	1,371	1,689	1,876	2,145	2,356	66.5	16,372
D	32	31	47	48	52	64	67	66	81	77	85	90	92	3.38	832
E	17	28	32	31	34	47	50	55	64	76	78	77	71	2.68	660
F	56	76	67	72	77	107	107	107	115	122	127	159	122	5.34	1,314
G	39	47	76	46	55	59	59	64	68	74	83	85	77	3.38	832
H	6	8	6	7	7	7	8	7	6	6	6	6	3	0.34	83
I	26	32	38	45	68	82	167	104	131	184	172	179	195	5.78	1,423
K	33	39	55	79	84	96	98	89	90	90	94	93	82	4.15	1,022
L	10	11	11	11	13	13	14	14	23	23	26	33	28	0.93	230
M	0	1	1	1	3	7	11	11	16	19	35	39	31	0.71	175
N	7	7	5	4	6	19	21	21	24	28	39	42	35	1.05	258
O	4	4	5	4	4	0	0	0	0	0	0	0	0	0.09	21
P	0	0	0	0	0	0	1	1	1	2	1	4	1	0.04	11
Q	0	0	1	1	1	3	3	4	6	6	9	6	9	0.2	49
R	3	4	6	6	11	19	34	24	32	41	41	40	27	1.17	288
S	34	33	37	27	35	13	16	16	13	14	13	13	7	1.1	271
Total	755	1,009	1,195	1,318	1,333	1,483	1,907	1,918	2,113	2,522	2,763	3,092	3,211	100	24,619

Note: A: agriculture, forestry, livestock farming, fishery; B: mining; C: manufacturing; D: production and supply of electricity, steam and tap water; E: construction; F: wholesale and retail trade; G: transportation, storage and postal services; H: hotel and catering sectors; I: information transmission, software, and information technology services; K: real estate; L: leasing and business service; M: scientific research and technical services; N: water conservancy, environment, and public facilities management; O: residential services, repairs and other services; P: education; Q: health and social work; R: culture, sports and entertainment; S: comprehensive services.

$$EPU = \frac{\frac{1}{12}\sum_{1}^{12} epu}{100}. \tag{1}$$

The *epu* is the primary monthly index derived from an index measuring economic policy uncertainty. EPU is the average annual EPU index for China.

Internal control was derived from the DIBO Database. Audit fees and other control variables data were obtained from the CSMAR Database. To mitigate the influence of extreme values, this study conducted Winsorization at the 1% level for all continuous variables. Additionally, considering the possibility of sample clustering, the study applied a cluster adjustment at the company level for the standard deviation of regression coefficients. See Appendix A for details.

According to the above theoretical analysis, the following two models are constructed. Model (2) examines the relationship between EPU and audit fees, and model (3) tests the moderating effect by adding the interaction term "EPU×LNICI."

$$
\begin{aligned}
LNFEE_{i,t} = {} & \alpha_0 + \alpha_1 EPU_i + \alpha_2 SIZE_{i,t} + \\
& + \alpha_3 LEV_{i,t} + \alpha_4 INVR_{i,t} + \alpha_5 AREC_{i,t} + \\
& + \alpha_6 QUICK_{i,t} + \alpha_7 OCF_{i,t} + \alpha_8 ROA_{i,t} + \\
& + \alpha_9 LOSS_{i,t} + \alpha_{10} GROWTH_{it} + \alpha_{11} SOE_{i,t} + \\
& + \alpha_{12} TOP10_{i,t} + \alpha_{13} OPINION_{i,t} + \\
& + \alpha_{14} MARKET_{i,t} + \alpha_{15} LNICI_{i,t} + \Sigma YEAR + \\
& + \Sigma INDUSTRY + \varepsilon,
\end{aligned} \tag{2}
$$

$$
\begin{aligned}
LNFEE_{i,t} = {} & \beta_0 + \beta_1 EPU_i + \beta_2 LNICI_{i,t} + \\
& + \beta_3 EPU_{i,t} \times LNICI_{i,t} + \beta_4 SIZE_{i,t} + \\
& + \beta_5 LEV_{i,t} + \beta_6 INVR_{i,t} + \beta_7 AREC_{i,t} + \\
& + \beta_8 QUICK_{i,t} + \beta_9 OCF_{i,t} + \beta_{10} ROA_{i,t} + \\
& + \beta_{11} LOSS_{i,t} + \beta_{12} GROWTH_{i,t} + \\
& + \beta_{13} SOE_{i,t} + \beta_{14} TOP10_{i,t} + \\
& + \beta_{15} OPINION_{i,t} + \alpha_{16} MARKET_{i,t} + \\
& + \Sigma YEAR + \Sigma INDUSTRY + \sigma.
\end{aligned} \tag{3}
$$

Table 3. Descriptive statistics

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	N	mean	p50	sd	min	max
LNFEE	24,619	13.6159	13.5278	0.6498	12.4292	15.8251
EPU	24,619	3.5836	3.6400	2.4577	0.8200	7.9200
SIZE	24,619	22.1952	22.0211	1.2570	19.9957	26.0387
LEV	24,619	1.4131	1.0946	1.0650	0.4841	8.3757
INVR	24,619	0.1526	0.1173	0.1396	0.0004	0.7151
AREC	24,619	0.1161	0.0935	0.1011	0.0003	0.4608
QUICK	24,619	1.8506	1.1780	2.1249	0.1936	13.8071
OCF	24,619	0.0529	0.0514	0.0681	-0.1479	0.2469
ROA	24,619	0.0541	0.0436	0.0437	0.0009	0.2191
LOSS	24,619	0.0051	0.0000	0.0714	0.0000	1.0000
GROWTH	24,619	0.1975	0.1211	0.4113	-0.4572	2.7830
SOE	24,619	0.4181	0.0000	0.4932	0.0000	1.0000
TOP 10	24,619	0.5420	1.0000	0.4982	0.0000	1.0000
OPINION	24,619	0.0098	0.0000	0.0987	0.0000	1.0000
MARKET	24,619	2.0944	2.1564	0.2553	1.2384	2.4230
LNICI	24,619	6.5029	6.5194	0.1381	2.1939	6.9009

Note: Variables' definitions are given in Appendix A.

3. RESULTS

Table 3 reports descriptive statistics results. First, the results show that audit fees of listed companies vary greatly. Second, economic policy adjustment is relatively apparent, and the EPU is relatively large. This shows that the research is feasible. Last, the listed companies' internal control quality is very different. Other variables are consistent with previous studies.

Table 4 reports Pearson correlation coefficients for each variable. The correlation coefficient between EPU and LNFEE is 0.25, which is significant at the 1% level, indicating that EPU is significantly positively correlated with audit fees, which initially proves H1. In addition, the LNICI and LNFEE of the correlation coefficient are 0.086, significant at the 1% level, indicating that the internal control quality and audit fees have a significantly positive correlation. The correlation between the other variables is less than 0.8, showing no multicollinearity problem between other variables.

Table 5 presents the regression results under various conditions. To assess the robustness of findings, the paper employed four distinct methodologies for computing the EPU, namely:

1) the arithmetic mean of monthly EPU divided by 100; 2) the geometric mean of monthly EPU divided by 100; 3) the logarithm of the arithmetic mean of monthly EPU; 4) the logarithm of the median of monthly EPU. The above four results are used as the proxy variables of EPU for regression, and the results are as follows.

Taking the arithmetic mean of monthly EPU, divided by 100, the results (column 1) reflect the unary regression results without any control variables, and the results show that EPU and LNFEE are significantly positively correlated at the 1% level. The regression coefficient of EPU is 0.1317; if EPU increases by 1%, LNFEE will increase by 0.1317%, showing that the higher EPU is, the higher the audit fee the company will pay. Column 2 reflects the full-sample regression after adding various control variables and a statistically significant positive correlation between EPU and LNFEE at a significance level of 1%. H1 is proved.

The results in columns 3, 4, and 5 indicate a significant and positive association between EPU and LNFEE at a 1% significance level, indicating that higher EPU is linked to higher audit fees. The regression results for the remaining control variables are consistent with those in column 2. It shows that research conclusions are robust.

Table 4. Pairwise correlations analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) LNFEE	1.000															
(2) EPU	0.250***	1.000														
(3) SIZE	0.738***	0.140***	1.000													
(4) LEV	0.053***	−0.048***	0.122***	1.000												
(5) INVR	0.019***	−0.105***	0.121***	0.011*	1.000											
(6) AREC	−0.061***	0.098***	−0.202***	−0.036***	−0.110***	1.000										
(7) QUICK	−0.241***	0.029***	−0.333***	−0.230***	−0.259***	0.037***	1.000									
(8) OCF	0.046***	0.082***	0.015**	−0.091***	−0.256***	−0.203***	0.047***	1.000								
(9) ROA	−0.041***	0.014**	−0.093***	−0.365***	−0.143***	−0.004	0.250***	0.419***	1.000							
(10) LOSS	0.016**	0.006	0.005	0.232***	−0.005	−0.003	−0.017***	−0.031***	−0.087***	1.000						
(11) GROWTH	0.024***	−0.068***	0.029***	−0.074***	0.043***	0.049***	−0.057***	−0.003	0.173***	−0.030***	1.000					
(12) SOE	0.087***	−0.140***	0.317***	0.125***	0.044***	−0.222***	−0.227***	0.000	−0.168***	0.027***	−0.062***	1.000				
(13) BIG10	0.182***	0.081***	0.089***	−0.040***	−0.025***	0.009	−0.008	0.044***	0.049***	−0.005	−0.012*	−0.029***	1.000			
(14) OPINION	0.005	0.009	−0.019***	0.088***	−0.007	0.015**	−0.017***	−0.032***	−0.051***	0.033***	−0.006	−0.011*	0.002	1.000		
(15) MARKET	0.205***	0.345***	0.010*	−0.133***	−0.006	0.170***	0.073***	0.014**	0.076***	−0.010	−0.021***	−0.233***	0.124***	0.001	1.000	
(16) LNICI	0.086***	−0.136***	0.149***	−0.113***	0.061***	−0.041***	−0.034***	0.085***	0.217***	−0.109***	0.123***	0.076***	0.021***	−0.171***	−0.023***	1.000

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Variables' definitions are given in Appendix A.

Table 5. Main regression analysis

Variables	(1) MEAN/100 LNFEE	(2) MEAN/100 LNFEE	(3) GEOMEAN LNFEE	(4) LOG OF MEAN LNFEE	(5) LOG OF MED LNFEE
EPU	0.1317*** (0.0028)	0.0302*** (0.0029)			
EPU_1			0.0341*** (0.0033)		
EPU_2				0.0910*** (0.0089)	
EPU_3					0.0897*** (0.0087)
Controls		YES	YES	YES	YES
_cons	12.9608*** (0.0173)	5.1863*** (0.2664)	5.1814*** (0.2661)	4.8100*** (0.2488)	4.8193*** (0.2491)
IND	YES	YES	YES	YES	YES
YEAR	YES	YES	YES	YES	YES
N	24,619	24,619	24,619	24,619	24,619
r2	0.4729	0.6678	0.6678	0.6678	0.6678
r2_a	0.4727	0.6674	0.6674	0.6674	0.6674

Note: Standard errors in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Variables' definitions are given in Appendix A.

Table 6 investigates the moderating effect of internal control quality in the association between EPU and audit fees. The study generated an interaction term "interact" through EPU×LNICI and added it into the model for regression to test whether the interaction term is significant. The analysis discovered that the interaction term has a significant negative association with LNFEE at the 1% level, indicating that higher internal control quality can effectively mitigate the rise in audit fees caused by an increase in EPU, thereby supporting H2.

According to the results in columns 2, 3, and 4, the variable "interact" exhibits a significant negative

Table 6. Moderating effect test

Variables	(1) MEAN/100 LNFEE	(2) GEOMEAN LNFEE	(3) LOG OF MEAN LNFEE	(4) LOG OF MED LNFEE
EPU	0.0302*** (0.0029)			
interact	−0.0229*** (0.0067)			
EPU_1		0.0342*** (0.0033)		
interact1		−0.0238** (0.0073)		
EPU_2			0.0923*** (0.0088)	
interact2			−0.0727** (0.0242)	
EPU_3				0.0907*** (0.0087)
interact3				−0.0687** (0.0224)
Controls	YES	YES	YES	YES
_cons	5.1147*** (0.2671)	5.1483*** (0.2660)	4.7129*** (0.2517)	4.7151*** (0.2524)
IND	YES	YES	YES	YES
YEAR	YES	YES	YES	YES
N	24,619	24,619	24,619	24,619
r2	0.6682	0.6681	0.6681	0.6681
r2_a	0.6678	0.6678	0.6677	0.6677

Note: Standard errors in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Variables' definitions are given in Appendix A.

correlation with LNFEE at the 1% significance level, indicating the robustness of research findings.

This study employs the following two methods to examine the robustness of the findings. Upon examining the sample period, it was observed that 2007 and 2008 coincided with the global financial crisis. Therefore, the preceding regression findings could be attributed to the worsening economic climate rather than the effects of economic policy uncertainty. Policy uncertainty associated with the 2012 leadership transition in China could have influenced audit fees. Therefore, the paper drops the data from 2007 and 2008, 2012 and 2013, and obtains 19,490 observations. The findings indicate a significant positive correlation between EPU and LNFEE at a 1% significance level. Moreover, the negative correlation between the interaction term EPU×LNICI and LNFEE is significant at a 5% level, providing further evidence for H1 and H2.

It is important to note that the impact of economic policy is frequently manifested not in the immediate term but rather in subsequent periods. Therefore, the study chose EPU_{t-1} lagged by one period to match with other data and obtain 19,653 observations. As presented in Table 7, the outcomes indicate a statistically significant positive association between EPU_{t-1} and LNFEE at a 1% level. In comparison, the negative correlation between the interaction term EPU_{t-1}×LNICI and LNFEE is significant at a 10% level.

This paper examines how the positive association between EPU and LNFEE differs between SOEs and non-SOEs to test differences between groups. The following three tests were employed:

1) Dividing the whole sample into SOEs group (10,292 observations of SOEs) and non-SOE group (14,327 observations of non-SOEs) and regressing, respectively. EPU exhibits a statistically significant positive correlation with LNFEE for both SOEs and non-SOEs at a 1% significance level. Nonetheless, the regression coefficient of non-SOEs is higher than that of SOEs, suggesting that a rise in EPU leads to a comparatively larger increase in audit fees for non-SOEs than for SOEs.

2) Generating an interaction term through SOE×EPU and testing the moderating effect of the nature of equity through the Chow test.

3) Employing a Fisher Test by Bootstrap 1000 times to determine the significance of variations in EPU between groups, with the outcomes demonstrating an empirical p-value of 0.016. This suggests a notable between-group difference in EPU between SOEs and non-SOEs, with a significant positive correlation at the 10% level. The study can reach a consistent conclusion through the above three methods: SOEs have a stronger ability to resist EPU risks, and the positive association between EPU and LNFEE is stronger in non-SOEs.

Table 7. Robustness check

Variables	(1)	(2)	(3)	(4)
	LNFEE	LNFEE	LNFEE	LNFEE
EPU	0.0342***	0.0345***		
	(0.0044)	(0.0044)		
interact		−0.0199**		
		(0.0074)		
EPU_{t-1}			0.0233***	0.0235***
			(0.0042)	(0.0042)
interact4				−0.0214*
				(0.0089)
Controls	YES	YES	YES	YES
_cons	5.2420***	5.1064***	4.7646***	4.3440***
	(0.2906)	(0.2982)	(0.3082)	(0.3675)
IND	YES	YES	YES	YES
YEAR	YES	YES	YES	YES
N	19,490	19,490	19,653	19,653
r2	0.6461	0.6464	0.6581	0.6583
r2_a	0.6457	0.6460	0.6576	0.6578

Note: Standard errors in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001. Variables' definitions are given in Appendix A.

Table 8. Heterogeneity analysis

Variables	(1) LNFEE (SOE)	(2) LNFEE (Non–SOE)	(3) LNFEE (TOP 10)	(4) LNFEE (Non–TOP 10)
EPU	0.0268***	0.0389***	0.0317***	0.0331***
	(0.0042)	(0.0046)	(0.0043)	(0.0040)
SOE			0.0605*	−0.0327
			(0.0274)	(0.0363)
TOP 10	0.0391*	0.0333*		
	(0.0162)	(0.0154)		
Controls	YES	YES	YES	YES
_cons	5.5403***	5.2747***	4.9110***	5.6811***
	(0.4181)	(0.3643)	(0.3768)	(0.3619)
IND	YES	YES	YES	YES
YEAR	YES	YES	YES	YES
N	10,292	14,327	13,343	11,276
r2	0.6086	0.7031	0.6441	0.6571
r2_a	0.6076	0.7026	0.6434	0.6564
SOE×EPU	−0.0170***			
TOP 10×EPU			−0.0008	
Empirical p-value	0.0160*		0.1350	

Note: 1) Standard errors in parentheses, * p < 0.05, ** p < 0.01, *** p < 0.001.2) "SOE×EPU" and "TOP 10×EPU" were Chow tests, which tested the significance of the differences between groups by establishing the cross-multiplication term. 3) Empirical p-values were used to test the significance of differences in EPU between groups and were obtained by Bootstrap 1000 times. Variables' definitions are given in Appendix A.

This study adopts the same method to examine the difference in the positive relationship between EPU and LNFEE between TOP 10 and non-TOP 10. Columns 3 and 4 present regression findings for TOP 10 and non-TOP 10 firms, respectively. The analysis had 13,343 TOP 10 firms and 11,276 observations of non-TOP 10 firms. Grouping regression results show that EPU and LNFEE are significantly positively associated at 1% in both TOP 10 and non-TOP 10 firms. However, the regression coefficient of TOP 10 firms is marginally lower than that of non-TOP 10 firms, implying that non-TOP 10 firms experience a more significant increase in audit fees when EPU rises. The study also tested the interaction term through the Chow test and the empirical p-value through the Fisher test, but no significant conclusions could be obtained. Thus, the results cannot conclusively establish that there exists a significant disparity in the positive correlation between EPU and LNFEE among accounting firms of varying sizes (Table 8).

4. DISCUSSION

This paper provides empirical evidence and supports the risk theory of Grandell (1991). Risk is directly proportional to returns (or fees) in competitive markets. Economic policy uncertainty increases external risk for businesses, leading auditors to charge higher fees. On the other hand, effective internal controls reduce operational risk for businesses, which can partially lower audit fees. Within China's institutional background, state-owned enterprises have greater risk-bearing capacity, resulting in a smaller impact of economic policy uncertainty on audit fees for these enterprises.

The study found that higher economic policy uncertainty is associated with higher audit fees. Economic policy uncertainty can increase a company's operational risk and agency costs, leading to increased audit fees. This suggests auditors consider the practice risks triggered by economic policy uncertainty when making audit fee decisions. This result aligns with the findings of Zhang et al. (2018). In contrast to traditional literature examining factors influencing audit fees, such as Bronson et al. (2017) and Audousset-Coulier (2015), this study introduces economic policy uncertainty as a systematic risk factor in audit pricing and demonstrates how this risk affects audit fees.

The results indicate that effective internal control serves as a risk-mitigation mechanism. Effective

internal controls in a company can curb management's opportunistic behavior, reduce internal agency costs, and promptly identify operational risks while implementing targeted measures to address corresponding issues (Hogan & Wilkins, 2008; Knechel & Payne, 2001). When auditors perceive higher internal control quality in a company, they may appropriately forgo unnecessary audit procedures or reduce the quantity of audit evidence to ensure audit efficiency. The reduced audit effort lowers the auditor's demand for audit fees.

The results indicate that SOEs exhibit stronger risk resistance and greater resource allocation, resulting in a less pronounced impact of EPU on audit fees than non-SOEs. This finding contrasts with the results of Fan et al. (2007). The study presents results that differ from Fleischer and Goettsche (2012), Simunic (1980), and Stanga and Turpen (1991), not establishing a significant difference in the impact of EPU on audit fees between TOP 10 and non-TOP 10 firms.

This study explores the timing of the impact of economic policy uncertainty. Most studies regress current financial data on current EPU. This study recognizes that the effects of economic policies often have a lagged impact and tend to influence the next period's financial data rather than the current period's. Therefore, regressing the current EPU on the subsequent period's financial data is necessary to reflect the consequences of EPU objectively.

This study considers the impact of the Chinese government's transition. Most studies do not consider the impact of government transitions in China. In fact, government transitions are significant events in China that affect market expectations and ultimately impact companies' financial data. Thus, a more accurate reflection of the association between EPU and audit fees can be achieved by excluding the influence of government transitions.

This study also specifically considers the significant role of state-owned enterprises in China. This study conducts regression analyses on state-owned and non-state-owned enterprises separately, and the results indicate that EPU has a more negligible impact on the audit fees of state-owned enterprises. This result aligns with China's unique institutional background. State-owned enterprises in China have larger scale, more substantial competitiveness, and favorable government-business relationships. Therefore, they possess greater risk resilience and can better withstand the risks brought about by EPU compared to non-state-owned enterprises.

This study extends the research on the influencing factors of audit fees to the macro level and provides novel insights into the impact of EPU. The findings confirm the moderating effect of internal control on the association between EPU and audit decisions, contributing to the heterogeneous research on this topic. The research conclusions have important implications for various stakeholders. Enterprises should prioritize establishing effective internal control systems and foster good relationships with the government. In contrast, governments should strive to reduce uncertainty and increase the transparency of economic policies.

CONCLUSION

In recent years, the influence of macroeconomic policies on micro-firm behavior has attracted significant attention. This paper examines the impact of economic policy uncertainty on audit fees and the moderating effect of internal control quality. The results indicate that higher economic policy uncertainty is associated with higher audit fees and that reasonable internal control can effectively reduce audit risk. Moreover, it was found that the positive association is more potent for non-state-owned companies than for state-owned companies. However, the results do not show significant differences between TOP 10 and non-TOP 10 accounting firms. However, one limitation of the study is that it only uses a single measure of economic policy uncertainty, and future research could consider other indicators. Another limitation is that the sample is limited to A-share listed companies in China, and non-listed companies are not included in the analysis.

These results have implications for stakeholders. Enterprises should focus on improving internal control to resist the increase of audit fees resulting from economic policy uncertainty. Accounting firms must invest more in countering the practice risks arising from economic policy uncertainty. The government should ensure policy continuity and stability, improve transparency in policy-making, reduce administrative intervention, and mitigate the impact of economic policy uncertainty on the market. The study, thus, expands the understanding of the macro-micro linkages and offers policy implications for enhancing economic efficiency and performance.

AUTHOR CONTRIBUTIONS

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APPENDIX A

Table A1. Variables and definition

Variable		Definition
Dependent variable	LNFEE (Audit Fees)	Audit fees include audit inputs and audit costs (Simunic, 1980)
Independent variable	EPU (Economic policy uncertainty)	The inability of market players to accurately predict the timing, nature, and extent of changes in economic policies (Gulen & Ion, 2016)
Moderating variable	LNICI (Internal control index)	It evaluates the level of internal control of Chinese listed companies since 2000 (Knechel & Payne, 2001)
Control variables	SIZE (Company asset size)	Take the natural logarithm of the total assets at the end of the year (Hay, 2013; Hay et al., 2006; Simunic, 1980)
	LEV (Financial leverage)	Total assets divided by total liabilities (Bronson et al., 2017; Gong et al., 2018; Lesage et al., 2017)
	INVR (Inventory ratio)	Year-end inventory divided by total assets (Stein et al., 1994)
	OREC (Accounts receivable ratio)	Year-end accounts receivable to year-end total assets (Stein et al., 1994)
	QUICK (QUICK ratio)	Deduct inventory from current assets and divide by current liabilities (Bell et al., 2008)
	OCF (Operating cash flow ratio)	Ratio of net operating cash flow divided by total assets(Bell et al., 2008)
	ROA (Return on Total Assets)	Ratio of annual net profit divided by annual total assets (Barua et al., 2019; Ittonen & Peni, 2012; Vafeas & Waegelein, 2007)
	LOSS (Operating LOSS)	If the net profit is negative, take 1; otherwise take 0 (Barua et al., 2019; Ittonen & Peni, 2012; Vafeas & Waegelein, 2007)
	GROWTH (Sales revenue growth)	Ratio of sales revenue growth, that is, the increase in sales revenue for the current year divided by last year's sales revenue (Barua et al., 2019; Ittonen & Peni, 2012; Vafeas & Waegelein, 2007)
	SOE (state-owned enterprise)	If the actual controller of the enterprise is the government or state-owned enterprise, take 1; otherwise, take 0 (Fan et al., 2007)
	TOP 10 (TOP 10 accounting firms)	According to the ranking of audit revenue, 1 is taken if the top 10 firms are ranked; otherwise, 0 is taken (Fleischer & Goettsche, 2012; Simunic, 1980; Stanga & Turpen, 1991)
	OPINION (Audit Opinion)	If the audit opinion is "unqualified OPINION with emphasis," "qualified OPINION," "negative OPINION," or "unable to express OPINION," take 1; otherwise, take 0 (Lai, 2009)