Who Pays for the Policy Instability?

Client Bargaining Power and Audit Fees

Arpine Maghakyan, *University of Glasgow*

Preliminary draft- December 2022

Acknowledgments

I thank Angela Pettinicchio, Henry Jarva, Jukka Sihvonen, Lasse Niemi, Lynda Mayers, Qiang Guo, Stefan Sundgren, participant of 44th EAA Annual Congress and Nordic Accounting Conference for numerous comments and suggestions. I acknowledge the HSE Foundation, the Jenny and Antti Wihuri Foundation, the OP Foundation, the Marcus Wallenberg Foundation, and the Foundation for Economic Education for their financial support. All remaining errors are my own.

Who Pays for the Policy Instability? Client Bargaining Power and Audit Fees

Abstract

This paper examines the impact of policy instability and client bargaining power on auditor fees. Using Baker et al.'s (2016) Economic Policy Uncertainty Index and a sample of US firms from 2002 to 2018, this study documents a negative association between audit fees and policy instability. However, the fee reduction during the instability period is driven by fees for larger clients. For smaller clients, no similar fee reduction is observed. Using quantile regressions, I find that audit fees during high policy instability for clients paying higher fees while increasing for clients in the lower tail of audit fees. Results show that the probability of misstatements decrease for the clients in the lower tail of audit fees in a high EPU period, while there is no observable difference for clients in higher tail of fee distribution. Findings show that more Big4 clients benefit from the bargaining power and gain lower fees in a high EPU period than non-Big4 clients due to clientele size differences between Big4 and non-Big4. Combined, results show that even if economic policy instability is associated with lower audit fees on average, it is mainly driven by important clients with higher bargaining power. In the meantime, clients in the lower tail of audit fee distribution experience an increase in fees, which also reflects on the future lower restatements.

Keywords: Macroeconomic policy uncertainty, audit fees, client importance, bargaining power, fee pressure, quantile regression, restatements

JEL classification: M40, M42

1. Introduction

The purpose of this study is to examine how client importance affects the relation between audit fees and economic policy instability.[1] Over the last few years, global political and economic uncertainty has begun to have more profound effects on the global economy. Political and economic instability increases the overall uncertainty levels both in the US and worldwide. Growing policy disputes and polarization in the US are causing major concerns about uncertain policies in the context of economic and financial decisions (Baker et al., 2016; Al-Thaqeb and Algharabali, 2019). Uncertainties in taxation, monetary, fiscal, and other policies significantly contribute to economic downturns and the speed of crisis recovery. Al-Thaqeb and Algharabali (2019) describe how technology and globalization have increased the complexity of processes in today's world, leading to higher uncertainty and, thus, affecting financial markets and policies. The overall research interest around policy uncertainty has increased. Researchers have documented that overall economic policy uncertainty and ambiguity affect the behavior of firms' and markets' financial decisions (Pastor and Veronesi, 2012; 2013; Nagar et al., 2019, Chourou et al., 2020). For instance, firms may respond to macroeconomic policy uncertainty by cutting their avoidable costs (Li, 2019), postponing corporate investments, and hiring during heightened macroeconomic policy uncertainty periods (Gulen and Ion, 2015; Julio and Yook, 2012). The overall increased instability in the financial markets caused by policy instability increases the risk of going concern uncertainty for firms. To understand how auditors respond to this increased business risk, I study the association between auditing costs, measured as audit fees, and the level of macroeconomic policy instability related to future policy and regulatory outcomes in light of client bargaining

[1] Terms policy instability and policy uncertainty are used through the text interchangeably.

power. This study seeks to understand the economic costs of policy uncertainty in the audit context.

External factors can play a significant role in a firm's decision-making process, based explicitly on audit literature. Eierle et al. (2021) document that political factors such as corruption (Jha et al., 2020; Xu et al., 2019), political connections (Wahab et al., 2011; Gul, 2006), political visibility (Gong et al., 2018; Wu and Ye, 2020) and policy instability (Zhang et al., 2018; Brushwood et al., 2020) are determinants of audit fees.

There has been little research on policy uncertainty in the auditing process despite ongoing discussions about the potential effects of policy instability in the auditing context until recently. Zheng et al. (2018) document that audit fees are lower for the policy uncertainty period, and there is an asymmetry between Big4 and non-Big4 audit firms, which they explain by the audit fee pressure. In contrast, Brushwood et al. (2020) find that auditors charge higher audit fees in US states with a dual policy environment, as it increases the complexity of the processes. Still, we do not yet know about the mechanisms through which policy uncertainty affects audit pricing, for instance, if the effect is conditional on client size or the audit services supplier. The scarce existing evidence is limited to how uncertainty relates to the conditional mean of the audit fee distribution. However, the association between the average level of audit fees and policy uncertainty might not accurately describe the relationship in the other parts of the audit fee distribution. Therefore, instead of merely relying on the traditional OLS regression that only estimates the average relation, I estimate a set of quantile regressions by several quantiles to test the relation across the entire audit fee distribution. This research design fits well with our assumption that the relation between audit fees and policy uncertainty varies depending on the client's bargaining power level. Research suggests that larger clients have more bargaining power in negotiating audit fees (Casstarella et al., 2004; Huang et al., 2007) compared to smaller clients. It is worth noting that larger clients have more bargaining power because they

pay higher fees than smaller clients. Therefore, the higher the client's audit fees, the greater the incentives for the auditor to keep the client, lending to the client's bargaining power.

To address the question of how audit fees change during times of economic policy uncertainty for clients with different bargaining powers, I examine US firms during 2002–2018 using quantile regressions and the Economic Policy Uncertainty Index (EPUI) by Baker et al. (2016) as a proxy for policy instability. The EPUI covers a long period and therefore facilitates a study that extends prior studies on the impact of one recession on the economy. Using a fluctuation in the EPU level over a long period, we can better observe the overall effects of fluctuating policy uncertainty on the economy and, in this paper, in the context of auditing. During macroeconomic disorders, such as presidential elections, Gulf Wars I and II, the Lehman Collapse, Brexit, and other major events, the EPUI reaches its peaks.

On the one hand, economic policy uncertainty is related to more financially constrained markets, which increases business riskiness. Policy uncertainty could impact the firm's accounting estimates, making the comparability and predictability of financial statements more challenging. Auditing research indicates that perceived business risk is related to higher audit fees (Bell et al., 2001). Therefore, if auditors recognize the possibility of higher business risk during higher policy uncertainty, they might need to allocate more audit effort, which will result in raising the audit fees because of the increased risk level (Brushwood et al., 2020). On the other hand, given that firms cut their costs during policy uncertainty periods, there might be heightened pressure on auditors to lower their fees (Zhang et al., 2018). This might apply especially to larger firms with higher bargaining power.

Based on the discussion above, it is crucial to understand who pays for the policy instability. Is it the auditor or the client, does this change with the level of the client bargaining power across audit fee distribution.

In line with prior research (Zang et al. 2018), I find that, on average, audit fees decrease during the macroeconomic policy uncertainty period. However, this is true only for large clients; I do not find similar reductions for smaller firms. A more detailed examination with quantile regressions shows that clients who pay higher audit fees and, hence, have higher bargaining power gain a decrease in audit fees during high uncertainty periods; the opposite is found for clients in lower quantiles of audit fee distribution, as high uncertainty increases their fees. I also find a difference in fees depending on being audited by the Big4 or non-Big4. More specifically, Big4 clients are more likely to benefit from the bargaining power and lower fees in a high EPU period, while non-Big4 clients pay increased fees on average. However, this is driven by the fact that Big4 clients are larger overall than non-Big4 clients, and after accounting for client size differences, non-Big4 clients with high bargaining power also experience a decrease in fees during high policy uncertainty periods. In addition, findings show that the clients in the lower tail of audit fee distribution have lower probability of misstatements for these periods of EPU, while there is no evidence for the higher paying clients, who get discounts. Finally, the sensitivity tests support the robustness of the findings. First, I exclude observations from the period with the highest level of policy uncertainty to mitigate the concern that the findings are driven by one period and are not generalizable. Second, a change analysis supports the main finding that high policy uncertainty is associated with lower audit fees. Combined, these tests show that the findings are not sensitive to influential observations or the choice of research design.

This study makes several contributions to the literature. It provides empirical evidence on audit pricing and audit quality during a high policy uncertainty period, especially how it changes across the audit fee distribution using quantile regressions. Besides, it adds to our understanding of client bargaining power. Instead of focusing only on an average effect, this study covers differences in auditors' treatment of clients and their approach to prioritizing high-

paying clients in the high policy uncertainty periods. This study focuses on one attribute of macroeconomic uncertainty, which is policy uncertainty related to decisions made by politicians and regulatory institutions. Finally, it contributes to understanding the effect of external factors on audit fees and audit quality.

2. Literature review and hypothesis development

Policy uncertainty

Uncertainty impacts economic actions and behavior in various ways. Heightened uncertainty in the economy reflects consumers' decisions between consumption and savings as they feel a sense of uncertainty about their job, which, in turn, reflects in companies' investment decisions and even in monetary policymaking due to other uncertainties (Boero et al., 2008). Policy uncertainty negatively affects capital investments (Gulen, 2016) and earning comparability (Dhole et al., 2021), decreases information quality (Nagar et al., 2019), and increases analyst forecast errors (Chourou et al., 2020), earnings opacity (Jin et al., 2019), and cash holdings (Li, 2019).

Politicians' and regulatory institutions' decisions frequently shift the operational environment for firms. Considering the significant impact of the level of uncertainty that appears from policy decisions regarding the timing, content, and potential impact, it is crucial to study the economic consequences of policy-related uncertainty. This topic has recently been the center of discussion among academics, policymakers, and the media, with many arguing that increased uncertainty coming from political decisions affects the speed of recovery from a recession (Gulen et al., 2015). For example, during the COVID-19 pandemic, policy uncertainty and various possible scenarios implemented in different countries affected the economy (e.g. lockdowns). In addition, for both researchers and governments, policy uncertainty became an important topic as it forces firms to hold off on hiring and investments,

causing stricter cost reductions. This study contributes to this discussion by empirically investigating the effect of macroeconomic policy uncertainty on audit–client relations in the United States.

Audit fees and economic policy uncertainty

This research aims to estimate the general effect of macroeconomic policy uncertainty on audit fees and not just one specific event. The overall uncertainty has been measured using various proxies, such as analyst forecasts, volatility of stock returns, input and output prices, total factor productivity, and firm fundamentals (Gulen et al., 2015). However, measuring political and regulatory attributes in the uncertainty using an empirical proxy is not a simple task (Carruth et al., 2000), which might be another reason for limited research on this topic. However, Baker et al.'s (2016) EPUI helps fill this gap in the literature by constructing an index that aggregates three different attributes: a news-based attribute, tax uncertainty, and an economic forecaster disagreement component measure monetary and fiscal policy uncertainty.

The literature on audit fees is micro-level mainly, focusing on factors such as client firm characteristics, auditor quality, auditor expertise, auditor–client relationships (tenure, independence), and auditor portfolio (Hay, 2013; Hay et al., 2006). At the macro level, the literature suggests that auditors charge higher fees to cover litigation costs and provide the same level of audit quality under the higher litigation risk (Simunic and Stein, 1996). Another stream of researchers finds that audit fees decrease during financial crises (Beck and Mauldin, 2014; Chen et al., 2018; Ettredge et al., 2014), negatively affecting audit quality (Ettredge et al., 2014). Auditors charge higher fees to compensate for political factors such as corruption (Jha et al., 2020; Xu et al., 2019), political connections (Wahab et al., 2011; Gul, 2006), and political visibility (Gong et al., 2018; Wu and Ye, 2020). Zhang et al. (2018) find a negative relationship between policy uncertainty and audit fees, whereas Brushwood et al. (2020) show that policy duality and audit fees are positively related. Ettredge et al. (2014) suggest that

auditors make fee concessions to some clients during a financial crisis, which negatively affects audit quality.

There are multiple ways in which macroeconomic uncertainty affects audit fees. On the one hand, policy uncertainty increases business risk, leading auditors to increase the substantial testing procedures to address the increased risk. This would cause higher audit fees according to the traditional risk view of audit pricing (Simunic, 1980). Therefore, the need for increased audit effort might lead to increased audit fees. On the other hand, audit price is not only a classical function of audit risk (Simunic, 1980) but also subject to market conditions (e.g. change in demand and supply, inflation). Audit literature suggests that audit fees decrease during uncertainties such as financial crises (Beck and Mauldin, 2014; Chen et al., 2019; Chen et al., 2018; Ettredge et al., 2014). To avoid losing clients who experience a decrease in revenues, auditors have to compromise and discount their audit fees. Financial constraints and thus a tendency to save during economic uncertainty may lead to choosing more affordable auditors (Zhang et al., 2018). Due to these two opposite effects, the first hypothesis is non-directional.

H1: Audit fees are associated with policy uncertainty.

Client bargaining power

The literature suggests that clients have different bargaining powers depending on their importance to the auditor (Casterella et al., 2004; Huang et al., 2007). Given that relatively larger clients have higher importance to their auditors as they pay larger fees, the auditor might compromise generously in audit fee negotiations to retain the client. Considering that the management demand for cost reduction is higher due to increased policy uncertainty, the same logic can be applied in audit fee negotiations during high policy uncertainty periods, which gives relatively more important clients higher bargaining power. In addition, the increased

business risk during high policy uncertainty periods is the primary concern for auditors to increase their fees and for larger firms to have better internal controls (Doyle et al., 2007), which increases audit risk, especially for smaller firms. This might result in larger or relatively more important clients (those paying the highest fees) with higher bargaining power successfully achieving a desired audit fee level in negotiations during a high policy uncertainty period, while auditors are ready to let smaller firms change an auditor instead of offering discounted prices. Therefore, this paper tests whether client bargaining power makes a difference for audit price levels during high uncertainty periods.

H2: The negative association between audit fees and policy uncertainty increases with the amount of audit fees (client's bargaining power).

Quantile regression

To test H2, which states that the client's bargaining power increases with the level of audit fees paid, I use a quantile regression design to test how this relation changes across the distribution of audit fees. Quantile regressions have been used in situations where the effects can be different for the tails of the dependent variable from the effect on the mean. For example, studying how access to particular training programs can affect income could be different for high-income and low-income people. Perhaps low-income individuals would benefit more from such training. Quantile regressions are also employed in accounting, finance, and economic literature to examine the relations between corporate governance mechanisms and tax avoidance (Armstrong et al., 2015), firm efficiency and leverage (Margaritis and Psillaki, 2007), initial audit engagements, and audit quality (Partadinata et al., 2014), the relative importance of internal and external sources of funds in financing corporate investments (Chay et al., 2015), first job placements and the distribution of earnings (Autor et al., 2017), and wage dispersion and the decentralization of wage bargaining (Dahl et al., 2013).

In this study, quantile regressions allow for testing whether the relation between policy uncertainty and audit fees varies across the distribution of audit fees, especially to understand if clients with higher audit fees have higher bargaining power and whether they use this power during the high policy uncertainty periods to negotiate discounted audit fees.

3. Data and research design

To conduct the study, I use the Economic Policy Uncertainty Index by Baker et al. (2016), Audit Analytics data, and Compustat databases to create a sample of panel data on US-listed companies. The sample is restricted to the period from January 2002 to December 2018. I collect audit-related data from Audit Analytics and company financial statement data from Compustat databases. Data from financial and insurance companies are excluded because of different reporting requirements. After removing the observations with missing data, the sample consists of 36,133 observations across 16 years.

3.1 Economic policy uncertainty measures

To measure the economic policy uncertainty, I use the EPUI (Baker et al., 2016), which is constructed from three components. The first component is based on newspaper coverage, specifically on the news about the policy-related economic uncertainty of 10 large newspapers (USA Today, the Miami Herald, the Chicago Tribune, the Washington Post, the Los Angeles Times, the Boston Globe, the San Francisco Chronicle, the Dallas Morning News, the New York Times, and The Wall Street Journal) containing the following keywords: “uncertainty” or “uncertain,” “economic” or “economy,” and one or more of the terms “congress,” “legislation,” “White House,” “regulation,” “Federal Reserve,” or “deficit.” The second component is tax-based, and it reflects the number of federal tax code provisions set to expire in the upcoming years. The third component uses disagreement among economic forecasters as a proxy for uncertainty (Baker et al., 2016). The EPUI spikes during macroeconomic disorders, such as presidential elections, Gulf Wars I and II, the Lehman Collapse, Brexit, and

other major events. The dynamics of the index over the sample period are presented in Figure 1. Based on the EPUI, I calculate the average macroeconomic uncertainty of the previous 12 months from the fiscal year-end date and use the natural logarithm of the measure as a proxy for policy uncertainty.

[FIGURE 1]

3.2 Audit fees and policy uncertainty

To test our hypothesis H1 regarding the effect of macroeconomic uncertainty on audit fees, I estimate an ordinary least squares regression model based on the prior audit fee literature (Francis, 1984; Hay et al., 2006; Simunic, 1980). More specifically, using unbalanced panel data and clustering the standard errors within the company year, I estimate the following model:

$$\begin{aligned} LNAUDIT\_FEE = \quad & \alpha + \beta_1 LNEPU + \beta_2 LNTA + \beta_3 RELSIZE + \beta_4 BIG4 + \beta_5 SEG + \\ & \beta_6 QUICK + \beta_7 ROA + \beta_8 SALEGROWTH + \beta_9 INVREC + \\ & \beta_{10} INDSPEC + \beta_{11} LOSS + \beta_{12} BUSY + \beta_{13} FOREIGN + \\ & \beta_{14} NONAUDITFEES + \beta_{15} GOING\_CONCERN + \beta_{16} CHANGE \\ & + \text{industry fixed effects} + \varepsilon \end{aligned} \tag{1}$$

where the dependent variable, *LNAUDIT_FEE*, is measured as the natural logarithm of the audit fees and is regressed on our test variable, which is measured by the natural logarithm of the EPUI (*LNEPU*) for the *t-1* period, as the negotiations between the client and auditor start well in advance.

Client characteristics. Following the prior literature (Hay et al., 2006), I control for a large set of client characteristics; client size (*LNTA, RELSIZE*), inherent risk (*INVREC*), profitability (*LOSS ROA, SALEGROWTH*), complexity (*SEG, FOREIGN*), and leverage (*QUICK*) (Francis and Yu, 2009; Li, 2009; Ye et al., 2011). First, I control for client size

(*LNTA*) using the natural logarithm of total assets, and I expect to have a positive association with audit fees, as larger firms are more inclined to pay more (Simunic, 1980). *RELSIZE*, measured as sales divided by all the sales audited by the given auditor. Further, I control for the inherent risk (*INVREC*), which I expect to be positively associated with the audit fees as companies with higher inherent risk might be charged higher audit fees to cover the auditors' extra effort. Controlling for losses (*LOSS*) made by companies, audit fees are expected to be higher for clients making a loss. To control for the complexity, I measure the square root of the number of segments (*SEG*) and foreign transactions (*FOREIGN*) and expect it to increase audit fees. As a busy session normally leads to higher fees, *BUSY* is another control variable in the model. Finally, I control for industry fixed effects, as audit fees might differ depending on the client's industry.

To control auditor and engagement characteristics that can affect audit fees, I add auditor-specific control variables in the model. First, I control for auditor quality (*BIG4*), and I expect that Big4 auditors charge an audit fee premium. Second, industry specialists (*INDSPEC)* are known to charge higher audit fees. Finally, to control for engagement attributes, non-audit fees are controlled.

3.3 Client bargaining power and quantile regressions

Next, to test hypothesis H2 regarding how client bargaining power affects the relation between policy uncertainty and audit fees, I use two different research designs. First, I simply split the sample into two subsamples by client assets (median cut-off). As larger clients might be more important for the auditor, and to not lose them, the auditor would negotiate audit fees with them considering their higher bargaining power (Cassterella et al., 2004). Second, I use quantile regressions, where I assume that clients with high audit fees have greater bargaining power.

Quantile regression

In addition to the more traditional ordinary least squares (OLS) regression, to test hypothesis H2, I use quantile regression (Koenker and Bassett, 1978). Compared to OLS regression, quantile regression gives the advantage of estimating not only the mean of the dependent variable conditional on the independent variable values, but it also allows for studying the partial effects of an explanatory variable, which can have different effects across different segments of the population (Wooldridge, 2010). Consequently, estimating quantile regressions in addition to the OLS regression allows us to compare the marginal effect of the policy uncertainty across the conditional distribution of audit fees expressed as a function of the observed control variables. Quantile regression allows for evaluating how some quantiles of the conditional audit fee distribution may be more affected by policy uncertainty than other quantiles. Considering that clients at the higher end of the audit fee distribution have higher importance for the auditor, the auditor would rather compromise the price than lose the client, giving these clients higher bargaining power. Therefore, quantile regression enables testing how this bargaining power would affect relations between policy uncertainty and audit fees, allowing me to estimate the relation not only for the conditional mean audit fees but also for the other tails of the distribution.

4. Results

4.1 Descriptive statistics

Table 1 shows the distribution of the sample and policy uncertainty index (*LNEPU*) by year. The years before 2010–2012 had the highest policy uncertainty levels, which matches with the post-crisis period followed by the 2012 US elections. The overall sample consists of 36,133 observations from 2002 to 2018. Not surprisingly, audit fees have been constantly increasing over time.

Table 2 Panel A presents descriptive statistics for the variables used in our analyses. The average logarithmic audit fee (*AUDIT_FEE*) is 13.794. The mean logarithm of the uncertainty

index is 4.688, where the minimum is 4.206 and the maximum is 5.174. The mean of audit pressure is -0.033% of total assets. The average client size measured as the natural logarithm of total assets (*LNTA*) is 20.421. The mean value of the *RELSIZE* is 0.033. The majority of clients 79.7% (28,798 clients) are audited by Big4 (*BIG4*) auditors. An average client has approximately 14 operational and geographic segments (*SEG*). The mean value of the quick ratio (*QUICK*) is 0.354. Regarding financial performance, the average *ROA* is -0.016, and 30.2% of the firm-years report a negative net profit (*LOSS*). The average sales growth (*SALEGROWTH*) is -0.009. The mean ratio of inventory and receivables in total assets (*INVREC*) is 0.252. The auditors with industry expertise (*INDSPEC*) comprise 17.2% of the sample, and 4.9% of the sample changed (*CHANGE*) to a new auditor (1,771 clients). Most of the audits (67.3%) are conducted in December (*BUSY*). Regarding foreign transactions (*FOREIGN*), 49.5% of the observations had foreign income. The mean logarithmic non-audit fees (*NONAUDITFEES*) is 12.025. *SOX404* affected 82.2% of the observations in the sample. The percentage of the clients experiencing issues related to going concern is 3%.

[TABLE 2]

Table 2 Panel B presents the mean values and standard deviation of variables used in audit fee analysis by quantiles of audit fees; the sample is divided into 4 quantiles. The mean of the logarithm of audit fees (*AUDIT_FEE)* changes from 11.991 to 15.581, from the lowest to the highest quantile. There is a slight increase in the level of *LNEPU* for higher quantiles. However, client bargaining power is higher for the lower quantiles, the reason being that the proportion of non-Big4 auditors is higher in the lower quantiles. Total assets grow with a monotonically growing trend from 17.976 to 22.890. More than 94% of the high-paying clients are audited by the Big4, while for the lowest quantiles, only 46% are audited by the Big4. Likewise, more industry specialists audit the largest quantiles—28.5% are audited by industry specialists in the largest quantile and only 7.7% in the lowest quantile.

4.2 Univariate analysis

Table 3 shows the univariate analysis of fee pressure by the level of policy uncertainty and firm size. *PRESSURE* is calculated following Ettredge et al.'s (2014) fee pressure measure, first based on the audit fee model (1) (excluding *LNEPU*), where benchmark audit fees are calculated for each client based on low policy uncertainty, (lower than the median *LNEPU*) model parameter estimates, and current year variable values. Then, I calculate the difference in actual fees and anti-logged (exponential) benchmark fees and scale by total assets. From the comparison of mean values on average, there is no significant difference in fee pressure (*PRESSURE*) comparing the low and high policy uncertainty periods. However, fee pressure is higher for larger firms during high policy uncertainty periods ($p<0.01$). Overall fee pressure is higher for firms with larger assets, which provides initial support for H2.

[TABLE 3]

4.3 Regression results

Table 4 presents the results of the OLS regression analyses of audit fees and client bargaining power during the policy uncertainty period. Column (1) reports results for *LNEPU* and other controls, providing evidence that the association between audit fee and policy uncertainty is negative (-0.032, t=-2.29). Consistent with expectations, the coefficient of *RELSIZE* is negative. Signs of the control variables are consistent with the predicted signs based on the literature. Column (2) shows the results of regression analysis of audit fees and *LNEPU* only for the large client subsample, in which *LNEPU* is also negative and significant (-0.101, t=-7.15). Column (3) shows the results of regression analysis for smaller clients, and the coefficient of *LNEPU* is not significant (-0.027, t=1.60). The results of models (1) and (2) show that the uncertainty is negatively associated with audit fees, as the coefficient of policy uncertainty (*LNEPU*) is negative and significant, except for the small clients. Relatively larger clients of audit firms (*RELSIZE*) pay even lower fees in the larger client subsample. The

coefficient of Big4 (*BIG4*) for large firms is statistically significant at only 10%, which can be explained by the fact that larger firms are mostly audited by Big4 auditors, and there is not enough variation. Large firms pay higher fees for complexity (*SEG*, *INVREC*). Statistical significances are calculated by clustering the standard errors within companies (Peterson, 2009). All the control variables are significant at $p<0.01$ and consistent with expected signs, except *SALEGROWTH* and *INDSPEC*, which are not significant. These results show that the average fee discount is only about 3%, while for the larger clients it is economically more significant, reaching 11%.

[TABLE 4]

Table 5 presents the results of quantile regressions for audit fees and policy uncertainty. The quantiles presented are the 5^{th}, 25^{th}, 50^{th}, 75^{th}, and 95^{th}. The coefficient of *LNEPU* is positive for the 5^{th} (0.130, t=4.81) and 25^{th} (0.026, t=1.84) percentiles, and the relation becomes negative for the higher percentiles, 50^{th} (-0.057, t=-4.55), 75^{th} (-0.124, t=-9.06), and 95^{th} (-0.210, t=-8.18), respectively. There are several other interesting insights regarding control variables. Specifically, the coefficient of industry specialist firms (*INDSPEC*) is higher for the lowest percentiles of audit fees and decreases with the level of audit fees, becoming non-significant for the highest tail of the distribution. A negative and significant ($p<0.01$) coefficient in the case of auditor change is observed for the lower percentiles 5^{th}, 25^{th}, and 50^{th}; it becomes non-significant for the 75^{th} percentile and positive for the 95^{th} (0.162, t=5.22). Auditors charge higher fees during the busy period (*BUSY*) for low-paying clients. Overall, the results of quantile regressions show that the relations between policy uncertainty and audit fees change across the audit fee distribution. This is in line with hypothesis H2, supporting the suggestion that clients with higher bargaining power are more likely to get lower audit fees during high policy uncertainty under the manager's cost reduction pressure.

[TABLE 5]

Figure 2 presents the graphical comparison of the estimates and confidence intervals of policy uncertainty for the OLS and quantile regressions for the full sample. Figure 2 plots several quantile regression lines and one OLS regression line. The green line in the shaded area denotes quantile regression coefficients for *LNEPU* in different quantiles, and the shaded area represents a 95% pointwise band for quantile regression estimates. The dashed horizontal line shows a linear regression, and the two dotted horizontal lines demonstrate the 95% confidence intervals for the linear regression. According to the plot, the relationship between policy uncertainty and audit fees is negative and significant, but the quantile regressions clearly show that the relation is first positive at lower quantiles of the fee distribution, and it becomes gradually more negative in the upper tail of the distribution.

[FIGURE 2]

Table 6 presents the results of quantile and OLS regressions for audit fees and policy uncertainty by auditor type. The quantiles presented are the 25^{th}, 50^{th}, and 75^{th}. The coefficients of *LNEPU* for Big4 are negative for the higher percentiles, 50^{th} (-0.080, t=-5.63), 75^{th} (-0.145, t=-9.35), and not significant for the 25^{th} (-0.008, t=-0.50) percentile. Non-Big4 clients in the lower and median fee distribution pay higher fees (0.168, t=5.72; 0.060, t=2.19) during high policy uncertainty, and only clients in the 75^{th} quantile negotiate lower fees (-0.054, t=-1.82) using their bargaining power. The OLS regression results show that, on average, the relations for Big4 between audit fees and policy uncertainty are negative and statistically significant (-0.065, t=-5.12), while for non-Big4, they are positive (0.054, t=2.13). These results support the findings in Tables 4 and 5 that the negative association between policy uncertainty and audit fees is stronger for clients with higher bargaining power, and considering that Big4 clients are larger overall, this effect is strongly reflected in Big4 audit fees.

[TABLE 6]

Table 7 presents the results of quantile and OLS regressions for audit fees and policy uncertainty by auditor type after matching Big4 and non-Big4 clients by total assets using propensity score matching. Considering that there are size differences between Big4 and non-Big4 clients, I use matched samples to test whether the difference in coefficients in Table 6 is driven by client size differences and self-selection. Table 7 shows that after matching the clientele of Big4 and non-Big4, there is a significant and negative association between policy uncertainty and audit fees for non-Big4 clients in the upper tail of the audit fee distribution. This shows that the differences between Big4 and non-Big4 found in Table 6 are driven by client size differences, and that client bargaining power is an important driver in the relational differences between policy uncertainty and audit fees and not auditor type.

[TABLE 7]

4.4 Change analysis

For the sensitivity check, I estimate change analysis for the audit fee model, where the changes are calculated between the current and lagged values for continuous variables and drop the categorical variables and segments. More specifically, the following model is used:

$$\Delta LNAUDIT\_FEE = \alpha + \Delta\beta_1 LNEPU + \beta_2 \Delta LNTA + \beta_3 \Delta RELSIZE + \beta_4 \Delta QUICK + \beta_5 \Delta ROA + \beta_6 \Delta SALEGROWTH + \beta_7 \Delta INVREC + \beta_8 \Delta NONAUDITFEES + \text{industry fixed effects} + \varepsilon \quad (2)$$

[TABLE 8]

The results reported in Table 8 show that for the OLS regression, the coefficient of the *LNEPU* is negative and significant, which is consistent with the results of the main analysis. The

quantile regressions for audit fee change also support the findings of the main analysis that the negative relation between audit fees and policy uncertainty develops more strongly with the level of audit fees. These results support the finding that, during high uncertainty periods when the management demand for cost reduction is high, auditors reduce the audit fees, especially for clients with higher bargaining power.

4.5 Restatements

There have been concerns in both academic and oversight bodies that fee pressure could lead to lower audit quality (Ettredge et al. 2014). As in highly uncertain situations, auditors might not be able to fully respond to the increased client risks. On the other hand, high litigation risk and auditor's reputation concerns might still force auditors to increase audit effort and not reduce the audit quality. Auditors become more risk-averse because of the macroeconomic uncertainty which might lead to more thorough audits which will result in fewer restatements in the future. On the other hand, fee pressure might lead to lower effort. For this reason, next, this study investigates if the audit fee pressure during the policy uncertainty period is associated with lower audit quality.

To understand how auditor adjustments during the high uncertainty periods affect the reporting quality, I estimate logistic regression analysis of restatements by audit fee quartiles. More specifically, the following model is used:

I use going concern opinions and financial reporting misstatements to understand how increased client risk and audit fee pressure during the high policy uncertainty periods are affecting the audit quality.

$$Prob(RESTETEMEN = 1) = \frac{1}{1+e^{-Z}} \quad (2)$$

Where,

$$
\begin{aligned}
Z = \; & \alpha + \beta_1 LNEPU + \beta_2 LNTA + \beta_3 RELSIZE + \beta_4 BIG4 + \beta_5 SEG + \\
& \beta_6 QUICK + \beta_7 ROA + \beta_8 SALEGROWTH + \beta_9 INVREC + \\
& \beta_{10} INDSPEC + \beta_{11} LOSS + \beta_{12} BUSY + \beta_{13} FOREIGN + \\
& \beta_{14} NONAUDITFEES + \beta_{15} GOING\_CONCERN + \beta_{16} CHANGE \\
& + \text{industry fixed effects} + \varepsilon
\end{aligned} \tag{3}
$$

where, the dependent variable, *RESTATEMENT* is an indicator variable equal to one if the firm experienced restatement. I split the sample by audit fee quartiles and run the model for each subsample.

[TABLE 8]

Table 8 shows that the coefficient of *LNEPU* is negative and significant for the lowest quartiles of the audit fee distribution and the effect is statistically larger for the lowest quartile. While it is not significant for the clients in the upper quartiles of audit fee distribution. These results show that the increased audit fees for the lowest paying client resulted in lower future restatements for these clients, while for high paying clients we do not observe a significant difference.

5. Conclusion

Considering the increase in policy instability in recent years, the negative effects of policy uncertainty on financial decisions, and cost-saving pressure from management, this study examines how such pressure from policy uncertainty affects audit fees, particularly how it differs across the audit fee distribution and client bargaining power.

This study documents several important findings regarding the influence of macroeconomic policy uncertainty on the level of audit fees and audit quality. First, the results show that, on average, auditors charge lower audit fees when policy uncertainty is higher. However, this finding applies to larger clients that are able to pressure their auditors and bargain

for lower audit fees, getting about an 11% discount on audit fees, while smaller firms do not succeed in their fee negotiations. This is also supported by the quantile regressions, which show that clients in the higher distribution of the audit fees gain up to 23% lower fees, while those in the lower tail of the fee distribution pay up to 14% higher fees due to high policy uncertainty. I find that lower fees during policy uncertainty for clients with high bargaining power are more profound for Big4 clients due to size differences between Big4 and non-Big4 clientele. After considering these differences between Big4 and non-Big4 clientele using propensity score matching, I find that the client bargaining power is highlighted even more for non-Big4 clients, resulting in lower fees for high-power clients and an increase for the lower tail of the audit fee distribution during high policy uncertainty periods. This is in line with the assumption that non-Big4 firms are more sensitive to client loss. Finally, the results show that during high uncertainty periods there are less restatements for the clients in the lowest distribution of audit fees, while there is no observable difference in the misstatements of high paying clients.

First, this research contributes to the understanding auditor and client relations during economic policy uncertainty. Second, our findings highlight the role of client bargaining power in audit fee negotiations. Third, it adds to our knowledge about the differences across audit fee quantiles. Overall, it contributes to understanding how audit fees change for clientele with different bargaining powers under external environmental forces, specifically during uncertainties attributed to policy and regulatory outcomes.

Appendix: Variable definition

Variable	*Definition*
AUDIT_FEE	The natural logarithm of audit fees paid by the client.
LNEPU	The natural logarithm of the average Economic Policy Uncertainty Index for 12 months before the fiscal year-end.
RELSIZE	Client relative size is a ratio of the client's sales divided by the sum of all sales of the clients of the given auditor.
PRESSURE	Fee pressure is calculated following (Ettredge et al., 2014) in two steps. First, benchmark audit fees are estimated for each client firm-year using audit fee model (1) (excluding *LNEPU*, *POWER*, and the interaction between them) based on data with low policy uncertainty (using median cut-off). Second, these predicted (log of) fees are anti-logged and deducted from actual audit fees and are scaled by total assets.
LNTA	The natural logarithm of a client's total assets.
BIG4	An indicator variable that is equal to one if the auditor works for Big4 and zero otherwise.
SEG	The square root of the number of operational and geographic segments.
QUICK	Current assets without inventory are scaled by total assets.
ROA	Net income scaled by total assets.
SALEGROWTH	The change in sales between year *t_1* and year *t* scaled by lagged sales.
INVREC	The sum of inventories and receivables scaled by total assets.

(continued on next page)

Appendix: Variable definition (Contiued)

Variable	*Definition*
LOSS	An indicator variable that is equal to one if a client reports a negative net income for the period and zero otherwise.
LEV	Total liabilities divided into total assets.
INDSPEC	An indicator variable that is equal to one if an auditor's audited total assets for a given industry in a given year are in the upper quartile of the distribution of all auditors in that industry, and zero otherwise.
CHANGE	An indicator variable that is equal to one if the audit partner has changed from the previous year, and zero otherwise.
BUSY	An indicator variable that is equal to one if December is the end of the reporting period, and zero otherwise.
FOREIGN	An indicator variable that is equal to one if the firm had foreign income, and zero otherwise.
NONAUDITFEES	The natural logarithm of non-audit fees paid by the client.
SOX404	An indicator variable that is equal to one for companies with fiscal years ending on or after 15 November 2004, and zero otherwise.
GOING_CONCERN	An indicator variable that is equal to one if going concern opinion is issued, and zero otherwise.
Industry fixed effects	Industry fixed effects.

References

Al-Thaqeb, S. A., & Algharabali, B. G. 2019. Economic policy uncertainty: A literature review. *The Journal of Economic Asymmetries* 20, e00133.

Armstrong, C. S., Blouin, J. L., Jagolinzer, A. D., & Larcker, D. F. (2015). Corporate governance, incentives, and tax avoidance. *Journal of Accounting and Economics*, *60*(1), 1-17.

Autor, D. H., Houseman, S. N., & Kerr, S. P. 2017. The effect of work first job placements on the distribution of earnings: An instrumental variable quantile regression approach. *Journal of Labor Economics 35*(1), 149-190.

Baker, S.R., Bloom, N., Davis, S.J., 2016. Measuring Economic Policy Uncertainty. *The Quarterly Journal of Economics* 131, 1593–1636.

Beck, M. J., Mauldin, E. G. 2014. Who's really in charge? Audit committee versus CFO power and audit fees. *The Accounting Review*, 89(6), 2057-2085.

Boero, G., Smith, J., Wallis, K.F., 2008. Uncertainty and Disagreement in Economic Prediction: The Bank of England Survey of External Forecasters. *The Economic Journal* 118, 1107–1127.

Brushwood, J. D., Hall, C. M., & Rapley, E. T. 2020. Unintended costs of a dual regulatory environment: Evidence from state-level cannabis legalization and bank audit fees. *Journal of Accounting and Public Policy 39*(3), 106736.

Carruth, A., Dickerson, A., Henley, A., 2000. What do We Know About Investment Under Uncertainty? *Journal of Economic Surveys* 14, 119–154.

Casterella, J. R., Francis, J. R., Lewis, B. L., & Walker, P. L. 2004. Auditor industry specialization, client bargaining power, and audit pricing. *Auditing: A Journal of Practice & Theory 23*(1), 123-140.

Chay, J. B., Park, S. H., Kim, S., & Suh, J. (2015). Financing hierarchy: Evidence from quantile regression. *Journal of Corporate Finance 33*, 147-163.

Chen, J., Duh, R. R., Wu, C. T., & Yu, L. H. 2019. Macroeconomic uncertainty and audit pricing. *Accounting Horizons*, 33(2), 75-97.

Chen, L., Krishnan, G. V., Yu, W., 2018. The relation between audit fee cuts during the global financial crisis and earnings quality and audit quality. *Advances in Accounting* 43, 14–31.

Chourou, L., Purda, L., & Saadi, S. 2020. Economic policy uncertainty and analysts' forecast characteristics. *Journal of Accounting and Public Policy*, 106775.

Dahl, C. M., Le Maire, D., & Munch, J. R. 2013. Wage dispersion and decentralization of wage bargaining. *Journal of Labor Economics 31*(3), 501-533.

Dhole, S., Liu, L., Lobo, G. J., & Mishra, S. 2021. Economic policy uncertainty and financial statement comparability. *Journal of Accounting and Public Policy 40*(1), 106800.

Doyle, J., Ge, W., & McVay, S. 2007. Determinants of weaknesses in internal control over financial reporting. *Journal of Accounting and Economics*, 44(1-2), 193-223.

Eierle, B., Hay, D., Hartlieb, S., Niemi, L., & Ojala, H.. 2021. Importance of country factors for global differences in audit pricing: New empirical evidence. *International Journal of Auditing*: 1-21.

Ettredge, M., Fuerherm, E.E., Li, C., 2014. Fee pressure and audit quality. *Accounting, Organizations and Society* 39, 247–263.

Francis, J.R., 1984. The effect of audit firm size on audit prices: A study of the Australian Market. *Journal of Accounting and Economics* 6, 133–151.

Francis, J.R., Yu, M.D., 2009. Big 4 Office Size and Audit Quality. *The Accounting Review* 84, 1521–1552.

Gong, S. X., Gul, F. A., & Shan, L. 2018. Do auditors respond to media coverage? Evidence from China. *Accounting Horizons 32*(3), 169-194.

Gul, F. A. 2006. Auditors' response to political connections and cronyism in Malaysia. *Journal of Accounting Research 44*(5), 931-963.

Gulen, H., Ion, M., 2015. Policy Uncertainty and Corporate Investment. *Review of Financial Studies*.

Hay, D., 2013. Further Evidence from Meta-Analysis of Audit Fee Research. International Journal of Auditing 17, 162–176.

Hay, D., Knechel, W.R., Wong, N., 2006. Audit Fees: A Meta-analysis of the Effect of Supply and Demand Attributes. *Contemporary Accounting Research* 23, 141–191.

Huang, H. W., Liu, L. L., Raghunandan, K., & Rama, D. V. 2007. Auditor industry specialization, client bargaining power, and audit fees: Further evidence. *Auditing: A Journal of Practice & Theory 26*(1), 147-158.

Jin, J. Y., Kanagaretnam, K., Liu, Y., & Lobo, G. J. 2019. Economic policy uncertainty and bank earnings opacity. *Journal of Accounting and Public Policy 38*(3), 199-218.

Jha, A., Kulchania, M., & Smith, J. 2021. US political corruption and audit fees. *The Accounting Review 96*(1), 299-324.

Julio, B., Yook, & Y., 2012. Political uncertainty and corporate investment cycles. *Journal of Finance* 67, 45–84.

Koenker, R., & Bassett Jr, G. 1978. Regression quantiles. *Econometrica: Journal of the Econometric Society*, 33-50.

Li, C., 2009. Does Client Importance Affect Auditor Independence at the Office Level? Empirical Evidence from Going-Concern Opinions. *Contemporary Accounting Research* 26, 201–230.

Li, X. 2019. Economic policy uncertainty and corporate cash policy: International evidence. *Journal of Accounting and Public Policy 38*(6), 106694.

Margaritis, D., & Psillaki, M. 2007. Capital structure and firm efficiency. *Journal of Business Finance & Accounting 34*(9-10), 1447-1469.

Nagar, V., Schoenfeld, J., & Wellman, L. 2019. The effect of economic policy uncertainty on investor information asymmetry and management disclosures. *Journal of Accounting and Economics 67*(1), 36-57.

Partadinata, F. C., & Elizabeth-Tronnes, P. C. 2014. Audit Quality in Initial Audit Engagements: A Quantile Regression Approach. *Working Paper*

Pastor, Ľ., & Veronesi, P. 2013. Political uncertainty and risk premia. *Journal of Financial Economics* 110(3), 520-545.

Pastor, L., & Veronesi, P. 2012. Uncertainty about government policy and stock prices. *The Journal of Finance* 67(4), 1219-1264.

Simunic, D.A., & Stein, M.T., 1996. *Auditing*.

Simunic, D.A., 1980. The Pricing of Audit Services: Theory and Evidence. *Journal of Accounting Research* 18, 161.

Wahab, E. A. A., Zain, M. M., & James, K. 2011. Political connections, corporate governance and audit fees in Malaysia. *Managerial Auditing Journal*. 26 (5): 393-418.

Wooldridge, J. M. (2010). Econometric analysis of cross section and panel data. *MIT press*, 449.

Wu, D., & Ye, Q. 2020. Public attention and auditor behavior: The case of Hurun Rich List in China. *Journal of Accounting Research 58*(3), 777-825.

Xu, H., Dao, M., & Petkevich, A. 2019. Political corruption and auditor behavior: evidence from US firms. *European Accounting Review 28*(3), 513-540.

Ye, P., Carson, E., Simnett, R., 2011. Threats to Auditor Independence: The Impact of Relationship and Economic Bonds. *Auditing: A Journal of Practice & Theory* 30, 121–148.

Zhang, M., Xu, H., Tong, L., Ye, T., 2018. International evidence on economic policy uncertainty and asymmetric adjustment of audit pricing: Big 4 versus non-big 4 auditors. *Journal of Business Finance & Accounting* 45, 728–756.

Table 1

Sample size and mean values of main variables by years

Year	n	*LNEPU*	*AUDIT_FEE*
2002	2,903	4.678	12.737
2003	2,961	4.706	12.963
2004	2,814	4.522	13.426
2005	2,608	4.292	13.684
2006	2,410	4.275	13.799
2007	2,179	4.379	13.898
2008	1,986	4.828	13.975
2009	1,925	4.973	13.951
2010	1,850	5.031	13.960
2011	1,794	5.144	14.011
2012	1,761	5.121	14.061
2013	1,799	4.806	14.117
2014	1,823	4.491	14.138
2015	1,824	4.679	14.207
2016	1,831	4.712	14.247
2017	1,857	4.717	14.303
2018	1,808	4.781	14.374
	36,133	4.688	13.794

For variable definitions, see Appendix.

Table 2

Panel A: Descriptive statistics (n=36,133)

Variable	Mean	Std. Dev.	Q1	Median	Q3
AUDIT_FEE	13.794	1.399	12.758	13.826	14.759
LNEPU	4.688	0.258	4.521	4.702	4.851
RELSIZE	0.033	0.147	0.000	0.000	0.002
PRESSURE	-0.033	1.166	-0.050	-0.002	0.027
LNTA	20.421	2.211	18.753	20.424	21.974
BIG4	0.797	0.402	1.000	1.000	1.000
SEG	3.680	1.273	2.449	3.606	4.583
QUICK	0.354	0.225	0.178	0.310	0.487
ROA	-0.016	0.254	-0.021	0.034	0.075
SALEGROWTH	-0.009	3.351	-0.005	0.008	0.026
INVREC	0.252	0.183	0.098	0.224	0.362
LOSS	0.302	0.459	0.000	0.000	1.000
INDSPEC	0.172	0.377	0.000	0.000	0.000
CHANGE	0.049	0.215	0.000	0.000	0.000
BUSY	0.673	0.469	0.000	1.000	1.000
FOREIGN	0.495	0.500	0.000	0.000	1.000
NONAUDITFEES	12.025	1.826	10.793	12.038	13.291
SOX404	0.822	0.382	1.000	1.000	1.000
GOING CONCERN	0.030	0.171	0.000	0.000	0.000

For variable definitions, see Appendix.

Table 2

Panel B: Descriptive statistics (n=36,133) by quantiles of audit fees

Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<25th Q		25-50th Q		50-75th Q		>75th Q	
AUDIT_FEE	11.991	0.542	13.321	0.309	14.283	0.266	15.581	0.678
LNEPU	4.663	0.238	4.681	0.261	4.700	0.268	4.708	0.262
LNTA	17.976	1.220	19.733	1.279	21.085	1.211	22.890	1.406
RELSIZE	0.107	0.259	0.018	0.103	0.003	0.036	0.004	0.020
BIG4	0.461	0.499	0.797	0.402	0.940	0.238	0.989	0.104
SEG	3.009	1.019	3.356	1.107	3.825	1.179	4.531	1.238
QUICK	0.422	0.243	0.392	0.245	0.321	0.210	0.281	0.162
ROA	-0.076	0.382	-0.036	0.258	0.014	0.160	0.035	0.109
SALEGROWTH	-0.046	4.856	-0.029	4.505	0.031	1.022	0.006	0.030
INVREC	0.296	0.219	0.250	0.187	0.242	0.165	0.222	0.144
LOSS	0.423	0.494	0.348	0.476	0.246	0.431	0.193	0.395
INDSPEC	0.077	0.266	0.145	0.352	0.181	0.385	0.285	0.452
CHANGE	0.089	0.284	0.049	0.216	0.032	0.177	0.024	0.154

(continued on next page)

Table 2

Panel B: Descriptive statistics (n=36,133) by quantiles of audit fees (continued)

BUSY	0.593	0.491	0.667	0.471	0.693	0.461	0.739	0.439
FOREIGN	0.210	0.407	0.421	0.494	0.600	0.490	0.749	0.434
NONAUDITFEES	10.673	1.260	11.492	1.460	12.181	1.498	13.753	1.502
SOX404	0.627	0.484	0.804	0.397	0.917	0.276	0.942	0.234
GOING CONCERN	0.061	0.240	0.033	0.178	0.013	0.114	0.014	0.117
n	9,034		9,033		9,033		9,033	

For variable definitions, see Appendix.

Table 3

Univariate analysis of audit fee pressure by EPU level and client size

Variable	Low EPU			High EPU			
	n	Mean	Std. Dev.	n	Mean	Std. Dev.	T test
Full sample	16,983	-0.038	0.282	19,150	-0.028	1.579	-0.010
Large clients	7,839	-0.011	0.056	10,228	-0.009	0.064	-0.003***
Small clients	9,144	-0.061	0.377	8,922	-0.052	2.313	-0.010

For variable definitions, see Appendix. For readability purposes, *PRESSURE* is presented in % form. Less negative values for the *PRESSURE* indicate higher downward fee pressure. EPU is divided into high and low by the median of its distribution.

Table 4

Regression analysis of EPU and audit fees by client size

	(1) Full Sample	(2) Large firms	(3) Small firms
Test variables			
LNEPU	-0.0324***	-0.101***	0.027
	(-2.92)	(-7.15)	(1.60)
Control variables			
LNTA	0.484***	0.508***	0.487***
	(80.80)	(49.13)	(49.65)
RELSIZE	-0.378***	-0.790***	-0.370***
	(-8.36)	(-3.05)	(-8.17)
BIG4	0.209***	0.089*	0.241***
	(10.66)	(1.71)	(11.05)
SEG	0.082***	0.105***	0.041***
	(12.81)	(12.53)	(4.67)
QUICK	0.255***	0.223***	0.185***
	(6.87)	(3.19)	(4.37)
ROA	-0.225***	-0.364***	-0.188***
	(-4.23)	(-4.89)	(-3.72)
SALEGROWTH	-0.001	-0.000	-0.000
	(-0.67)	(-0.22)	(-0.56)
INVREC	0.503***	0.944***	0.363***
	(10.09)	(8.28)	(6.43)
LOSS	0.176***	0.128***	0.186***
	(10.85)	(6.90)	(9.55)
INDSPEC	0.013	-0.015	0.022
	(0.89)	(-0.83)	(1.02)

(continued on next page)

Table 4

Regression analysis of EPU and audit fees by client size (continued)

	(1)	(2)	(3)
	Full Sample	Large firms	Small firms
CHANGE	-0.036**	-0.032	-0.036*
	(-2.32)	(-1.27)	(-1.91)
BUSY	0.067***	0.069**	0.059***
	(3.98)	(2.55)	(2.97)
FOREIGN	0.203***	0.177***	0.231***
	(13.10)	(7.50)	(12.19)
NONAUDITFEES	0.083***	0.095***	0.055***
	(18.92)	(14.65)	(9.94)
SOX404	0.748***	0.775***	0.733***
	(73.52)	(51.68)	(53.51)
GOING CONCERN	0.248***	0.256***	0.210***
	(8.19)	(3.98)	(6.76)
RESTATMENT	0.137***	0.155***	0.120***
	(10.94)	(8.99)	(7.08)
Industry FE	Yes	Yes	Yes
Constant	1.482***	1.363***	1.413***
	(8.40)	(5.67)	(6.38)
Observations	36,133	18,067	18,066
Adjusted R^2	0.861	0.781	0.699

For variable definitions, see Appendix. Statistical significance based on two-tailed tests at the 1%, 5%, and 10% levels are denoted by ***, **, and *, respectively. Standard errors are adjusted for heteroscedasticity and clustering at the auditor level (Petersen, 2009).

Table 5

Quantile regression analysis of EPU and audit fees

	5th	25th	50th	75th	95th
Test variables					
LNEPU	0.130***	0.0257*	-0.0568***	-0.124***	-0.210***
	(4.81)	(1.84)	(-4.55)	(-9.06)	(-8.18)
Control variables					
LNTA	0.474***	0.470***	0.475***	0.482***	0.484***
	(82.09)	(157.75)	(178.00)	(164.60)	(88.43)
RELSIZE	-0.493***	-0.389***	-0.380***	-0.382***	-0.308***
	(-9.44)	(-14.45)	(-15.75)	(-14.41)	(-6.22)
BIG4	0.066***	0.184***	0.169***	0.176***	0.244***
	(2.91)	(15.79)	(16.22)	(15.42)	(11.41)
SEG	0.080***	0.094***	0.093***	0.082***	0.059***
	(12.00)	(27.27)	(30.21)	(24.28)	(9.35)
QUICK	0.146***	0.244***	0.296***	0.387***	0.580***
	(3.91)	(12.64)	(17.14)	(20.40)	(16.37)
ROA	-0.158***	-0.272***	-0.303***	-0.259***	-0.178***
	(-4.70)	(-15.65)	(-19.50)	(-15.17)	(-5.56)
SALEGROWTH	-0.003	-0.001	-0.000	0.001	-0.000
	(-1.38)	(-0.54)	(-0.25)	(0.70)	(-0.01)
INVREC	0.624***	0.509***	0.419***	0.367***	0.257***
	(13.33)	(21.08)	(19.37)	(15.47)	(5.79)
LOSS	0.166***	0.147***	0.154***	0.184***	0.239***
	(9.09)	(15.52)	(18.26)	(19.80)	(13.79)
INDSPEC	0.054***	0.031***	0.036***	0.024**	0.010
	(2.82)	(3.09)	(3.99)	(2.42)	(0.56)
CHANGE	-0.132***	-0.103***	-0.0499***	0.0226	0.162***
	(-4.04)	(-6.07)	(-3.30)	(1.36)	(5.22)
BUSY	0.107***	0.093***	0.084***	0.053***	0.008
	(6.83)	(11.47)	(11.54)	(6.67)	(0.55)

(continued on next page)

Table 5

Quantile regression analysis of EPU and audit fees (continued)

	5th	25th	50th	75th	95th
FOREIGN	0.256***	0.246***	0.245***	0.217***	0.168***
	(15.28)	(28.44)	(31.57)	(25.53)	(10.56)
NONAUDITFEES	0.122***	0.096***	0.092***	0.086***	0.084***
	(22.68)	(34.55)	(37.06)	(31.39)	(16.43)
SOX404	0.769***	0.773***	0.756***	0.733***	0.664***
	(39.97)	(77.84)	(85.10)	(75.08)	(36.38)
GOING CONCERN	0.145***	0.241***	0.244***	0.258***	0.279***
	(3.35)	(10.78)	(12.20)	(11.75)	(6.80)
Industry FE	Yes	Yes	Yes	Yes	Yes
Constant	-0.371**	0.816***	1.546***	2.297***	3.221***
	(-2.04)	(8.69)	(18.40)	(24.87)	(18.67)
Observations	36,133	36,133	36,133	36,133	36,133
Pseudo R^2	0.559	0.628	0.637	0.632	0.616

For variable definitions, see Appendix. Statistical significance based on two-tailed tests at the 1%, 5%, and 10% levels are denoted by ∗∗∗, ∗∗, and ∗, respectively. Standard errors are adjusted for heteroscedasticity and clustering at the auditor level (Petersen, 2009).

Table 6

Quantile regression analysis of EPU and audit fees by auditor type

	Big4				Non-Big4			
	25th	50th	75th	OLS	25th	50th	75th	OLS
Test variables								
LNEPU	-0.008	-0.080***	-0.145***	-0.065***	0.168***	0.060**	-0.054*	0.054**
	(-0.50)	(-5.63)	(-9.35)	(-5.12)	(5.72)	(2.19)	(-1.82)	(2.13)
Control variables								
LNTA	0.471***	0.471***	0.475***	0.470***	0.450***	0.472***	0.477***	0.465***
	(124.46)	(144.86)	(134.56)	(62.15)	(60.13)	(67.21)	(63.68)	(37.76)
RELSIZE	3.176***	5.592***	6.136***	4.860*	-0.414***	-0.413***	-0.397***	-0.403***
	(2.90)	(5.95)	(6.01)	(1.84)	(-15.05)	(-15.98)	(-14.38)	(-9.10)
SEG	0.090***	0.088***	0.073***	0.081***	0.100***	0.098***	0.090***	0.095***
	(22.56)	(25.77)	(19.59)	(11.80)	(12.08)	(12.73)	(10.92)	(8.14)
QUICK	0.273***	0.299***	0.385***	0.317***	0.0703*	0.205***	0.299***	0.203***
	(11.56)	(14.75)	(17.46)	(7.76)	(1.82)	(5.65)	(7.71)	(3.25)
ROA	-0.383***	-0.417***	-0.334***	-0.331***	-0.162***	-0.179***	-0.168***	-0.133***
	(-13.65)	(-17.32)	(-12.78)	(-9.36)	(-7.01)	(-8.22)	(-7.25)	(-2.64)
SALEGROWTH	-0.001	-0.000	0.001	-0.001	-0.002	0.001	-0.001	0.000
	(-0.63)	(-0.15)	(0.74)	(-0.53)	(-0.63)	(0.51)	(-0.43)	(0.04)

(continued on next page)

Table 6

Quantile regression analysis of EPU and audit fees by auditor type (continued)

	Big4				Non-Big4			
	25th	50th	75th	OLS	25th	50th	75th	OLS
INVREC	0.597***	0.524***	0.474***	0.534***	0.343***	0.299***	0.199***	0.280***
	(19.35)	(19.76)	(16.45)	(9.78)	(8.00)	(7.43)	(4.63)	(4.25)
LOSS	0.129***	0.126***	0.166***	0.159***	0.170***	0.180***	0.221***	0.205***
	(10.80)	(12.26)	(14.87)	(11.28)	(9.23)	(10.45)	(12.01)	(8.35)
INDSPEC	0.019*	0.032***	0.018*	0.022	0.125	-0.039	-0.145	0.009
	(1.81)	(3.50)	(1.88)	(1.51)	(1.20)	(-0.40)	(-1.39)	(0.07)
CHANGE	-0.093***	-0.051***	0.038*	-0.015	-0.077***	-0.062**	-0.015	-0.054**
	(-4.11)	(-2.63)	(1.83)	(-0.70)	(-2.82)	(-2.41)	(-0.56)	(-2.29)
BUSY	0.079***	0.079***	0.049***	0.066***	0.103***	0.103***	0.081***	0.089***
	(8.16)	(9.54)	(5.39)	(3.43)	(6.18)	(6.58)	(4.87)	(3.16)
FOREIGN	0.243***	0.233***	0.204***	0.231***	0.220***	0.249***	0.306***	0.254***
	(23.92)	(26.79)	(21.53)	(13.12)	(10.78)	(13.02)	(14.98)	(8.22)
NONAUDITFEES	0.100***	0.093***	0.088***	0.094***	0.086***	0.081***	0.081***	0.088***
	(30.87)	(33.38)	(29.21)	(18.26)	(12.46)	(12.58)	(11.72)	(9.28)
SOX404	0.819***	0.811***	0.787***	0.799***	0.497***	0.512***	0.491***	0.507***
	(71.77)	(82.66)	(73.83)	(69.82)	(20.01)	(21.97)	(19.72)	(21.42)

(continued on next page)

Table 6

Quantile regression analysis of EPU and audit fees by auditor type (continued)

	Big4				Non-Big4			
	25^{th}	50^{th}	75^{th}	OLS	25^{th}	50^{th}	75^{th}	OLS
GOING CONCERN	0.240***	0.250***	0.269***	0.261***	0.175***	0.194***	0.229***	0.192***
	(7.79)	(9.44)	(9.34)	(6.94)	(5.08)	(6.00)	(6.61)	(4.19)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.151***	1.932***	2.759***	1.917***	0.743***	1.087***	1.902***	1.272***
	(10.07)	(19.67)	(25.85)	(10.39)	(3.25)	(5.08)	(8.32)	(4.58)
Observations	28,793	28,793	28,793	28,793	7,340	7,340	7,340	7,340
Pseudo (Adjusted) R^2	0.591	0.594	0.595	0.822	0.437	0.476	0.505	0.709

For variable definitions, see Appendix. Statistical significance based on two-tailed tests at the 1%, 5%, and 10% levels are denoted by ***, **, and *, respectively. Standard errors are adjusted for heteroscedasticity and clustering at the auditor level (Petersen, 2009).

Table 7

Quantile regression analysis of EPU and audit fees by auditor type after matching Big4 and non-Big4 by size

	Big4						Non-Big4					
	5th	25th	50th	75th	95th	OLS	5th	25th	50th	75th	95th	OLS
LNEPU	0.166*	0.111***	0.016	-0.044	-0.131*	0.030	0.238***	0.163***	0.021	-0.097***	-0.271***	0.031
	(1.90)	(2.64)	(0.51)	(-1.11)	(-1.67)	(0.93)	(3.77)	(4.67)	(0.65)	(-2.86)	(-4.92)	(1.08)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,192	6,192	6,192	6,192	6,192	6,192	5,648	5,648	5,648	5,648	5,648	5,648
Pseudo (Adjusted) R^2	0.344	0.436	0.467	0.465	0.436	0.679	0.381	0.433	0.466	0.488	0.495	0.694

For variable definitions, see Appendix. Statistical significance based on two-tailed tests at the 1%, 5%, and 10% levels are denoted by ***, **, and *, respectively. Standard errors are adjusted for heteroscedasticity and clustering at the auditor level (Petersen, 2009). Big4 and non-Big4 are matched by total assets using propensity score matching without replacement.

Table 8

Change analysis of EPU and audit fees

	25th	50th	75th	OLS
Test variables				
ΔLNEPU	-0.093***	-0.121***	-0.329***	-0.295***
	(-13.32)	(-19.59)	(-21.41)	(-29.97)
Control variables				
ΔLNTA	0.202***	0.269***	0.364***	0.303***
	(38.91)	(58.84)	(31.96)	(21.49)
ΔRELSIZE	-0.131***	-0.126***	-0.188***	-0.277***
	(-7.05)	(-7.68)	(-4.60)	(-5.60)
ΔQUICK	-0.103***	-0.102***	-0.131***	-0.116***
	(-6.69)	(-7.57)	(-3.89)	(-3.36)
ΔROA	-0.073***	-0.093***	-0.113***	-0.044***
	(-19.38)	(-28.34)	(-13.80)	(-2.79)
ΔSALEGROWTH	-0.000	-0.000	-0.000	-0.000
	(-0.06)	(-0.15)	(-1.39)	(-0.16)
ΔINVREC	0.110***	0.126***	0.183***	0.158***
	(4.36)	(5.70)	(3.31)	(2.78)
ΔNONAUDITFEES	0.012***	0.006***	0.003	0.018***
	(9.25)	(5.40)	(1.24)	(5.59)
Industry FE	Yes	Yes	Yes	Yes
Constant	-0.0406**	0.0404**	0.145***	0.0900***
	(-2.07)	(2.34)	(3.37)	(7.98)
Observations	33,179	33,179	33,179	33,179
Pseudo R^2	0.025	0.032	0.056	0.069

For variable definitions, see Appendix. Statistical significance based on two-tailed tests at the 1%, 5%, and 10% levels are denoted by ∗∗∗, ∗∗, and ∗, respectively. Standard errors are adjusted for heteroscedasticity and clustering at the auditor level (Petersen, 2009).

Table 9

Regression analysis of EPU and restatements by audit fee quartiles

	<25th Q	25-50th Q	50-75th Q	>75th Q
Test variables				
LNEPU	-1.125***	-0.622***	-0.245	-0.169
	(-5.83)	(-3.81)	(-1.54)	(-1.14)
Control variables				
LNTA	0.007	-0.266***	-0.254***	-0.386***
	(0.14)	(-5.48)	(-4.88)	(-7.42)
RELSIZE	0.505***	0.460	-0.971	-6.604
	(3.01)	(1.08)	(-0.82)	(-0.66)
BIG4	0.163	0.032	0.403*	0.071
	(1.44)	(0.26)	(1.88)	(0.17)
SEG	-0.053	0.108**	0.059	0.052
	(-1.16)	(2.35)	(1.38)	(1.13)
QUICK	-0.570***	-1.085***	-0.378	-0.822**
	(-2.80)	(-4.84)	(-1.60)	(-2.51)
ROA	-0.022	-0.396**	-0.236	-0.127
	(-0.26)	(-2.26)	(-1.06)	(-0.38)
SALEGROWTH	0.004	0.004	0.015	0.091
	(1.01)	(0.99)	(0.88)	(0.29)
INVREC	0.315	-0.222	-0.318	-0.485
	(1.43)	(-0.80)	(-0.95)	(-1.07)
LOSS	0.322***	0.231**	0.361***	0.517***
	(3.49)	(2.18)	(3.25)	(4.88)
INDSPEC	0.003	0.042	0.165	0.191**
	(0.02)	(0.34)	(1.56)	(2.00)
CHANGE	0.551***	0.513***	0.536***	0.248
	(4.42)	(3.25)	(3.10)	(1.23)
BUSY	-0.182**	-0.190**	0.086	0.115
	(-2.01)	(-2.05)	(0.89)	(1.07)
FOREIGN	0.048	-0.026	-0.055	0.032
	(0.41)	(-0.28)	(-0.56)	(0.28)
NONAUDITFEES	0.040	0.084**	-0.010	0.081**

	(0.97)	(2.47)	(-0.31)	(2.29)
SOX404	0.139	-0.022	-0.463***	-0.413***
	(1.36)	(-0.18)	(-3.28)	(-2.80)
GOING CONCERN	0.201	0.005	0.517**	-0.272
	(1.18)	(0.02)	(1.97)	(-1.01)
Industry FE	Yes	Yes	Yes	Yes
Constant	1.478	4.822***	3.218**	5.375***
	(1.03)	(3.80)	(2.20)	(4.26)
Observations	9,033	8,988	9,037	9,046
Pseudo R^2	0.035	0.034	0.029	0.043

For variable definitions, see Appendix. Statistical significance based on two-tailed tests at the 1%, 5%, and 10% levels are denoted by ∗∗∗, ∗∗, and ∗, respectively. Standard errors are adjusted for heteroscedasticity and clustering at the auditor level (Petersen, 2009).

Figure 1: Economic Policy Uncertainty Index for US Economy

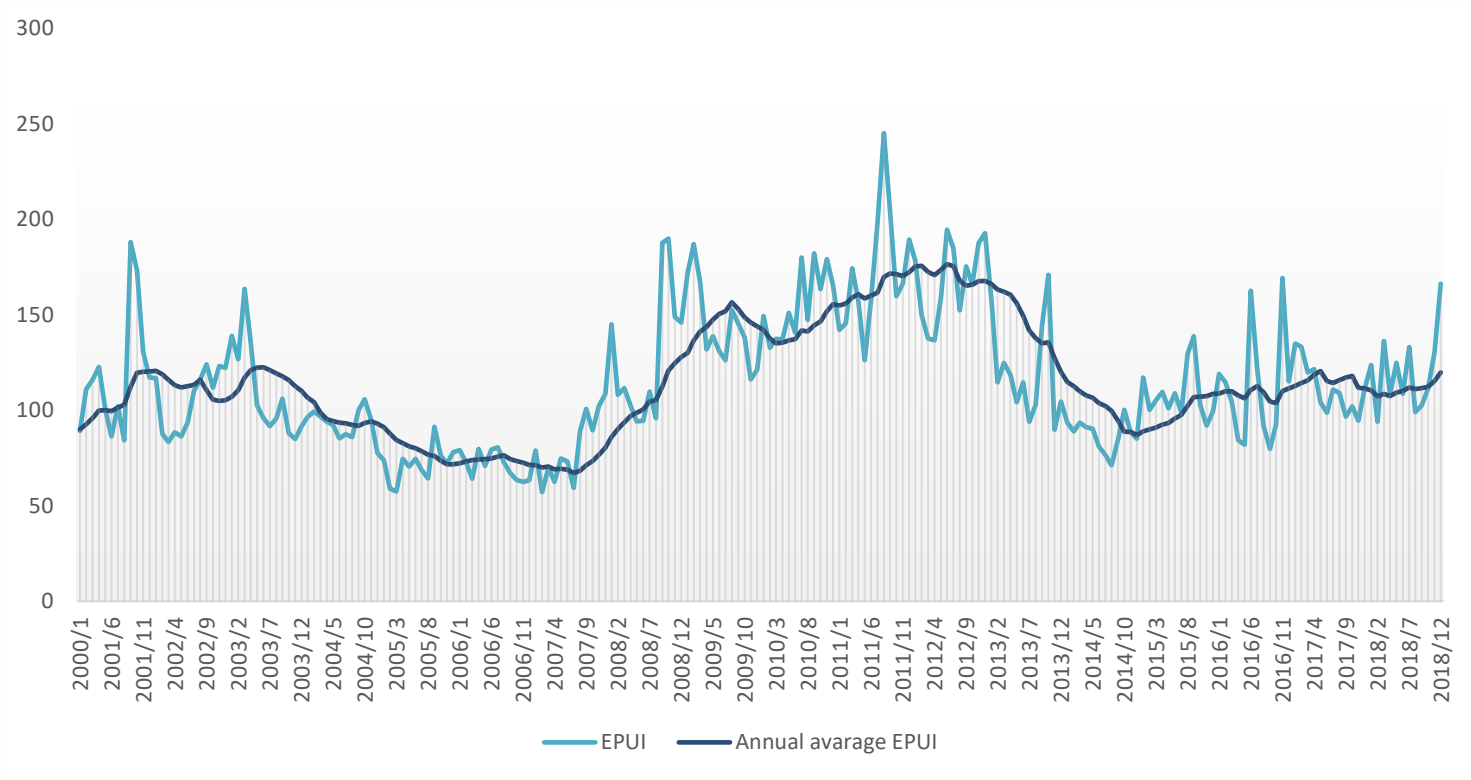
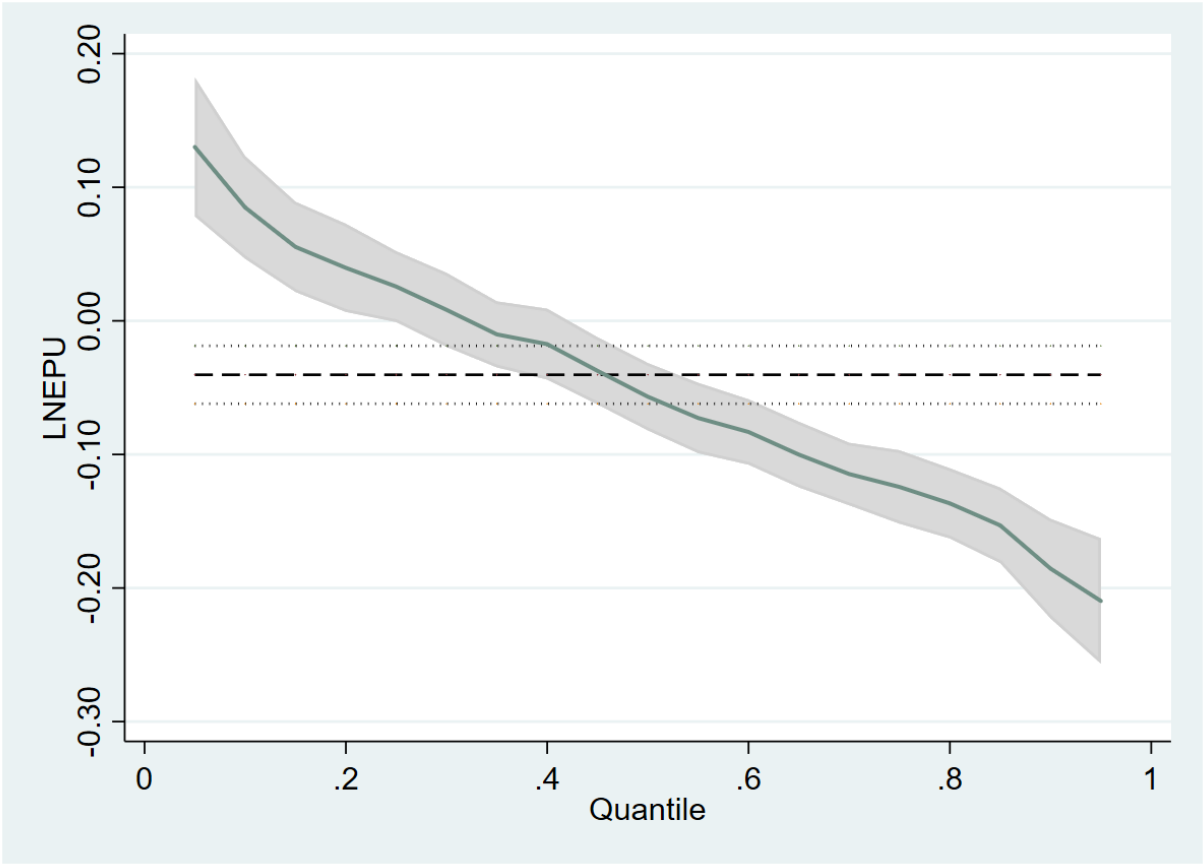


Figure 1 plots the economic policy uncertainty index by Baker et al. 2016 over time.

Figure 2: OLS regression model and quantile regression (QR) model estimates of *LNEPU* in audit fee model



---- OLS-Coefficient point estimate

…. OLS-Confidence interval

—— QR- Coefficient point estimate

xxx QR- Confidence interval