Managerial Response to Macroeconomic Uncertainty: Implications for Firm Profitability

by

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Business Administration
Duke University

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Dissertation submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy in Business Administration
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Abstract

This paper examines how agents' response to macroeconomic uncertainty affects firms' revenues, expenses, and profitability. Consistent with consumers reducing purchases and managers cutting costs, I find that increases in macroeconomic uncertainty lead to lower revenues and expenses. The net effect on profitability, however, is positive as the reduction in expenses exceeds the fall in revenues. The results last up to six quarters, vary predictably with countries' institutional environment, and hold under instrumental variable estimation employing exogenous variation in macroeconomic uncertainty arising from natural disasters, political unrest, revolutions, and terrorist attacks.

I dedicate this work to my parents, Andrea Binz and Otmar Loch-Binz. Their support and encouragement have been invaluable.

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1

Introduction

Understanding the causes of corporate profitability is important for a wide range of issues in accounting and finance (Penman 1992, Fama and French 2006, Kothari et al. 2010). In this paper, I evaluate how uncertainty about the macroeconomy affects consumers and managers' decision making and how their resulting actions impact firm profitability. My investigation is motivated by two factors. First, the existing literature that considers the influence of the macroeconomy on firm profitability generally focuses on the role of aggregate macroeconomic growth expectations (Ball et al. 2009, Bonsall et al. 2013, Li et al. 2014). However, research in macroeconomics shows that uncertainty about the state of the macroeconomy has a much larger effect on consumers and managers than whether the economy will expand or contract (Baker and Bloom 2013).[1] Despite the importance of macroeconomic uncertainty, we lack systematic empirical evidence on how agents' reactions to macroeconomic uncertainty

[1]The macroeconomics literature often refers to aggregate growth expectations and uncertainty as aggregate first and second moments.

impact corporate profitability.[2]

Second, the relationship between macroeconomic uncertainty and corporate profitability is theoretically ambiguous. Profitability is a result of the interplay among consumption, output, and investment, which determine revenues and costs.[3] On the one hand, precautionary savings theory predicts that risk-averse consumers respond to macroeconomic uncertainty by increasing their savings and decreasing their consumption to hedge against negative personal income shocks (Leland et al. 1968, Sandmo 1970, Dreze and Modigliani 1975). The resulting decrease in purchases reduces firms' revenues. Similarly, real options theory predicts that macroeconomic uncertainty increases consumers' incentives to delay purchase decisions, especially if the value of the good or service under consideration comprises a large share of the consumer's wealth, again leading to a reduction in revenues (Romer 1990, Eberly 1994). Thus, theory predicts that macroeconomic uncertainty lowers demand and subsequent corporate revenues.

On the other hand, consumers are not the only agents affected by macroeconomic uncertainty. Rational expectation models featuring belief fragility (Hansen and Sargent 2010) and behavioral models featuring loss aversion (Kahneman and Tversky 1979) predict that risk-averse managers assume the worst-case scenario when facing macroeconomic uncertainty, inducing them to cut costs. In response to high macroeconomic uncertainty, managers reduce capital spending, hiring, and advertising (Stein

[2]Knight (1921) distinguishes between risk and uncertainty. A chance experiment is risky when one knows the probability distribution of all possible outcomes. In contrast, a chance experiment is uncertain if one does not know the outcomes' associated probabilities. This paper follows Bloom (2014) in conceptualizing uncertainty as a mixture of Knightian risk and uncertainty.

[3]Following Dixit et al. (1994), I define investment as an act of incurring an immediate costs in expectation of future rewards.

and Stone 2013), which results in a negative relation between macroeconomic uncertainty and firms' expenses. Similarly, macroeconomic uncertainty induces managers to wait and see before investing, which reduces expenses deriving from current-period investment such as depreciation (Bloom 2009). Hence, theory also predicts that macroeconomic uncertainty induces managers to cut costs by halting investment, which lowers expenses.

While theory can guide predictions about the directional response of revenues and expenses to macroeconomic uncertainty, the net effect on corporate profitability is thus unclear and ultimately depends on the relative strength of the revenue and expense responses. If the reduction in expenses offsets the reduction in sales, which is plausible given that investment is more intertemporally substitutable than consumption (Basu and Bundick 2017), the resulting relation between profitability and macroeconomic uncertainty is positive. On the other hand, if managers do not scale back sufficiently to offset the reduction in sales (Anderson et al. 2003), the relation is negative.

To analyze the effect of macroeconomic uncertainty on profitability, I employ Baker et al.'s (2016) Economic Policy Uncertainty Index (EPUI), which spikes in response to uncertainty shocks, such as the Gulf Wars, 9/11, and the Lehman collapse, as a measure for macroeconomic uncertainty. I then examine the relationship between macroeconomic uncertainty and quarterly corporate profitability for a sample of US firms spanning the 1988 to 2018 period. Consistent with consumers reducing purchases in response to macroeconomic uncertainty and managers anticipating and counteracting the resulting adverse demand shock via cutting costs, I find that the relation between macroeconomic uncertainty and both revenues and expenses is neg-

ative. The effect persists for approximately four quarters, which is consistent with Bloom (2009) and Bloom et al.'s (2018) theoretical predictions. Further, once uncertainty is resolved approximately six quarters after the initial shock, the pent-up aggregate demand is released, leading to higher revenues and production in quarters six to eight. However, the net effect on profitability is positive and persists for five quarters. In the short run, managers' cost-cutting efforts more than offset the negative demand shock caused by macroeconomic uncertainty.

The reduction in expenses can take several forms, including aspects of cost of goods sold (COGS), net operating expenses, and net non-operating expenses. For example, managers may use cheaper materials, decrease spending on advertising, or reduce Property, Plant and Equipment (PPE), respectively. To examine which cost-cutting activities are most responsible for the increase in profitability, I examine gross profit and operating profit in detail. I observe that both COGS and gross profit are negatively associated with macroeconomic uncertainty, consistent with demand decreases overwhelming any cost-cutting measures with respect to COGS. However, the macroeconomic uncertainty-profitability relation turns increasingly positive as one moves down the income statement. Specifically, macroeconomic uncertainty is positively (negatively) associated with operating income (operating expenses). This implies that while cost-cutting in COGS by itself is not sufficient to generate profits in response to macroeconomic uncertainty, decreases in COGS in conjunction with operating expenses, such as Sales, General, and Administrative expenses (SG&A) and depreciation, are sufficient. Moreover, profitability increases further after one considers non-operating expenses, such as financing costs and gains and losses on the sale of capital, to arrive at bottom-line earnings (Bartov 1993).

To increase the external validity of my findings, I re-estimate all tests for an international sample. Whether these quarterly profitability results extend to countries beyond the US is unclear due to their different institutional and financial reporting environments. Many countries, notably the United Kingdom, China, and Germany, do not require quarterly reporting as the US does, so I analyze profitability at the annual level. To capture macroeconomic uncertainty in economies outside of the US, I measure aggregate growth expectations and uncertainty via MSCI World Index returns and Baker et al.'s (2016) Global Economic Policy Uncertainty Index. I am able to confirm the inferences obtained from the US sample internationally. That is, in response to macroeconomic uncertainty shocks, revenues and expenses decrease, but profits increase and the positive association between profitability and macroeconomic uncertainty begins to occur with operating income.

The international setting also allows me to further assess how firms adjust operating costs to facilitate the increasing relationship between macroeconomic uncertainty and corporate profitability. Specifically, employment protection legislation (EPL) varies across countries, which enables an analysis of labor cost-cutting. Managers' ability to cut net operating expenses, in which salary expenses typically concentrate, is restrained in countries with strong EPL. I therefore examine how the effect of macroeconomic uncertainty on corporate outcomes varies with EPL. While revenues and COGS remain unaffected, macroeconomic uncertainty's negative effect on net operating expenses and its positive effect on operating profit and overall earnings are attenuated in countries with strong EPL. In economic terms, moving from a low-EPL (USA) to a high-EPL (China) regime erases more than half of the positive effect of macroeconomic uncertainty on bottom-line earnings. Thus, the analysis of inter-

national data indicates that resource adjustment costs, in this case emanating from EPL, constrain managers' ability to counteract negative macroeconomic uncertainty demand shocks.

The interpretation of the empirical regularities I document assumes exogeneity of macroeconomic uncertainty. While this assumption appears reasonable if an individual firm's fate is unlikely to drive domestic or international economic policy uncertainty, recent literature suggests such a possibility. Gabaix (2011) shows that idiosyncratic firm-level shocks cause macroeconomic movements in economies in which firm size follows a power law distribution. Similarly, firms' increased risk-taking in bad times can cause uncertainty at the aggregate level (Bachmann et al. 2011, Tian 2015, Decker et al. 2016). To avoid the reverse causality concern that financial profitability of certain firms drives economic policy uncertainty and thereby the association I document, I turn to an instrumental variable approach. Specifically, I follow Baker and Bloom (2013) and extend the analysis by exploiting exogenous variation arising from natural disasters, political shocks, revolutions, and terrorist attacks within a 2SLS framework. My inferences remain unchanged, suggesting that reverse causality does not explain my findings.

As a collection, the evidence suggests managers respond to macroeconomic uncertainty by cutting costs more than customers cut their purchases. This poses the question why mangers do not cut costs even in the absence of macroeconomic uncertainty if they can increase profits by doing so. To explore this question, I extend the earnings analysis up to five years ahead in the future. The short run profit response to macroeconomic uncertainty reverses in the long run, which questions whether managers' cost cutting reaction increases shareholder value. Indeed, the reversal is so

strong that it appears unlikely that the reaction is efficient.

The international setting also allows me to analyze why managers engage in value destroying cost cutting in response to macroeconomic uncertainty by evaluating how managers' cost cutting reaction varies with their cultural environment. I document that managers located in countries in which long-term orientation, measured as Hofstede et al.'s (2010) long-term orientation score, plays a larger role reduce operating and non-operating expenses less, which indicates that the cost-cutting reaction documented here is at least partially driven by managerial myopia. Managers who are either themselves more long-term oriented or who face weaker capital market pressures to deliver strong short-term performance cut costs and investment less in response to macroeconomic uncertainty.

This paper contributes to the literature in several ways. First, I extend the literature exploring the effects of macroeconomic uncertainty on managers and consumers and the resulting consequences for corporate outcomes.[4] While studies in this literature generally focus on firms' investment decisions, I test how macroeconomic uncertainty affects firms' revenues, expense structures, and the resulting net effect on profitability. Most closely related to my study, a small number of papers employs surveys and small-sample evidence to examine the relation between volatility in macroeconomic variables and contemporaneous corporate profitability and finds mixed results (Musa 2014, Kemuma 2015, Demir 2009, Bayar and Ceylan 2017).

Second, this paper adds to the large earnings forecasting literature. Following early work by Kinney (1971), Foster (1977), and Watts and Leftwich (1977), researchers have, among other things, examined how accrual persistence, analyst bias,

[4]See Bloom (2014) for a review of this literature.

risk-taking, agency conflicts, mean reversion, firm-level uncertainty, and GDP forecasts affect future profitability.[5] I contribute to this literature by documenting a positive effect of macroeconomic uncertainty on future corporate profitability and by identifying managers' underlying cost-cutting techniques responsible for this effect.

Third, this paper adds to a recently growing literature at the intersection of accounting and macroeconomics. Among other things, previous papers examine reciprocal effects between macroeconomic uncertainty and management guidance (Rogers et al. 2009, Kim et al. 2015), how macroeconomic uncertainty affects media coverage of earnings announcements and the consequences for market outcomes (Bonsall et al. 2019), how inflation and macroeconomic uncertainty affect investors' assessment of firms' financial statements (Chordia and Shivakumar 2005, Basu et al. 2010, Konchitchki 2011), whether and how aggregate fluctuations impact contemporaneous corporate profitability (Ball et al. 2009, Bonsall et al. 2013), whether analysts effectively assess the implications of macroeconomic fluctuations on firm outcomes and value (Hugon et al. 2015, Joos et al. 2016), and whether macroeconomic estimation errors affect firms' investment, production, and profitability (Binz et al. 2017). My findings regarding the profitability impact of macroeconomic uncertainty answers the Dechow et al.'s (2010) call for research on the effects of macroeconomic conditions on corporate outcomes more generally and Shivakumar's (2010) call for research on how the macroeconomy affects corporate earnings more specifically.

[5]See, e.g., Sloan (1996), Schipper (1991), Bradshaw et al. (2001), Fama and French (2000, 2006), Dichev and Tang (2009), Hou et al. (2012), Li et al. (2014), and Carabias (2018).

2

Literature Review and Hypothesis Development

2.1 Literature Review

The interplay of consumers' purchasing and managers' investing decisions ultimately underpins corporate profitability, but research on the effects of macroeconomic uncertainty on profitability is scarce. Ample theoretical and empirical work, however, does focus on the effects of macroeconomic uncertainty on consumption and investment.[1] Real options theory and risk aversion are two key tenets of this literature, which I discuss in turn(Bloom 2014).[2]

[1]Caballero and Pindyck (1996) show that macroeconomic uncertainty depresses investment more than firm-level uncertainty when investment is partially irreversible. On the one hand, if aggregate conditions turn out favorably, existing competitors and new entrants will invest to capture as much of the benefits as possible, which dampens the attractiveness of investment to the individual firm. On the other hand, if aggregate conditions turn out unfavorably, partially irreversible investment slows down exit, which would mitigate adverse effects to the firm. As a result, negative aggregate shocks have a stronger effect than positive aggregate shocks. Such asymmetry is absent for firm-level shocks.

[2]While this paper is concerned with how macroeconomic developments affect corporate outcomes, a recent stream of literature in accounting takes the opposite approach by examining the effects of aggregated corporate outcomes on the macroeconomy. See, e.g., Kothari et al. (2006), Anilowski

2.1.1 Real Options

Investment opportunities give rise to real options whose value increases in macroeconomic uncertainty. Different types of real options either encourage or discourage investment. On the one hand, sizing options give firms the flexibility to tailor the scale of their operations to future business conditions (Oi 1961, Hartman 1972, Abel 1983). For example, consider a manager contemplating the purchase of a machine that would allow her to quickly and inexpensively adjust the firm's production volume to market demand. In this case, high macroeconomic uncertainty would encourage the purchase, as the manager would obtain the option to limit downside by cutting production when demand turns out to be low and to maintain upside by ramping up production when demand turns out to be high. Consistent with the presence of sizing options, Paddock et al. (1988) find that uncertainty increases the value of oil drilling leases.

On the other hand, in the presence of asymmetric adjustment costs, for example, when it is more costly for firms to reduce than to increase their capital stocks, macroeconomic uncertainty increases the value of the option to delay investment (Bernanke 1983, McDonald and Siegel 1986). When uncertainty about the future state of the economy is high, managers prefer to wait and see before making costly investments to increase capacity until they have a better idea of how much capacity will be required to fulfill demand. Accordingly, in the models of Bloom (2009) and Bloom et al. (2018), business conditions have to improve (deteriorate) more when macroeconomic

et al. (2007), Shivakumar (2007), Sadka (2007), Sadka and Sadka (2009), Cready and Gurun (2010), Jorgensen et al. (2012), Konchitchki and Patatoukas (2014a,b), Patatoukas (2014), Gkougkousi (2014), Gallo et al. (2016), Kalay et al. (2016), Choi et al. (2016), Nallareddy and Ogneva (2016), Shivakumar and Urcan (2017), Hann et al. (2017), Gallo et al. (2018), and Shevlin et al. (2019).

uncertainty is high before managers invest (divest). In other words, their region of inaction expands, and investment and production consequently contract. Similarly, the option to delay paired with high macroeconomic uncertainty can also decrease consumption. Romer (1990) and Eberly (1994) find that consumers prefer to wait and see until uncertainty about their employment and financial situation resolves before making costly durable purchases such as automobiles.

The net effect of macroeconomic uncertainty on investment through the real options channel depends on whether the value increase of sizing options outweighs the value increase of the option to delay or vice versa. Consistent with the option to delay but inconsistent with sizing options, the empirical literature generally documents a negative relationship between uncertainty and investment (Leahy and Whited 1996). Reduced investment comes in the form of decreased capital expenditures, hiring, and advertising (Stein and Stone 2013). Further, firms reduce investment before national elections and when policy uncertainty is high (Julio and Yook 2012, Gulen and Ion 2015). Lastly, aggregate growth, inflation, and trade correlate negatively with macroeconomic uncertainty (Ramey and Ramey 1995, Baker and Bloom 2013, Leduc and Liu 2016, Novy and Taylor 2014, Handley and Limao 2015).

2.1.2 Risk Aversion

Risk aversion may also explain the negative relation between macroeconomic uncertainty and consumption and investment. Risk aversion can impact customers, creditors, and managers. Assuming that agents' utility function $U(\cdot)$ satisfies prudence $U'''(\cdot) > 0$ in addition to non-satiation $U'(\cdot) > 0$ and risk-aversion $U''(\cdot) < 0$, an increase in macroeconomic uncertainty leads to a rise in current savings and a

corresponding decline in current consumption. Prudence implies that marginal utility is decreasing in personal income at an increasing rate, making consumers more willing to give up current consumption to build up precautionary savings as a hedge against negative personal income shocks (Leland et al. 1968, Sandmo 1970, Dreze and Modigliani 1975). The empirical literature confirms that precautionary savings explain a small but steady share of individual and aggregate savings. Guiso et al. (1992) use data from the Italian Survey of Household Income and Wealth, which asks individuals about their savings rates and their subjective estimates of their own future personal income uncertainty. The authors estimate that 1.82% of individuals' overall wealth accumulation is explained by the precautionary savings motive. Lusardi (1998) documents a somewhat larger effect (2 to 4.5%) for respondents to the US Health and Retirement survey. Hahm and Steigerwald (1999) and Menegatti (2010) confirm these findings for aggregate savings.

In principle, an increase in savings will result in an increase in investment. However, within a New Keynesian framework featuring nominal rigidities (i.e., sticky prices), Basu and Bundick (2017) show that aggregate demand determines managers' investment and output choices in the short run. The uncertainty-induced drop in consumption decreases incentives to invest. Similarly, Panousi and Papanikolaou (2012) argue that managers' wealth tends to be concentrated in the equity of their firms. Consequently, given their lack of diversification, managers respond to heightened macroeconomic uncertainty by becoming more cautious in their investment programs. Further, risk-sensitive managers tend to assume the worst-case scenario when facing macroeconomic uncertainty and react by decreasing investment (Hansen and Sargent 2010). Lastly, Gilchrist et al. (2014) and Christiano et al. (2014) show how

risk aversion drives investment through its effect on the availability of financing. Increased macroeconomic uncertainty induces lenders to demand higher credit spreads. The resulting rise in firms' cost of capital decreases the net present value (NPV) of firms' investment opportunities and thereby depresses investment.

In practice, it is difficult to determine whether the negative effect of macroeconomic uncertainty on investment and consumption derives from the option to delay or from risk aversion. Although the former assumes that managers account for the value of implicit real options while the latter makes assumptions about the functional form of agents' utility, both yield similar predictions and are potentially at play at the same time.[3]

2.1.3 Profitability

Largely independent from the literature reviewed above, a small number of studies evaluate the effects of macroeconomic uncertainty on contemporaneous corporate profitability. Baum et al. (2001) model the effect of exchange rate uncertainty on firms' profits. While their analytical results do not yield clear directional predictions for profit levels, they show that higher exchange rate volatility results in higher profit growth rate variability. Collecting survey data in Kenya, Musa (2014) and Kemuma (2015) find that exchange rate volatility does not affect the profits of oil marketing firms but does decrease the profits of insurance companies. Demir (2009) and Bayar and Ceylan (2017) employ samples of Turkish manufacturers and non-metallic mineral mining companies and document a negative relation between corporate profitability

[3]While there is no evidence on the relative magnitude of the real options and risk aversion channels on firm investment, Oh and Yoon (2019) use structural estimation to show that the real options channel accounts for more than one-third of the decline in residential investment between 2002 and 2009, highlighting its importance.

and macroeconomic uncertainty measured as GDP growth volatility and exchange rate volatility, but no relation when macroeconomic uncertainty is measured as inflation rate volatility.

In sum, theories based on real options and risk aversion link macroeconomic uncertainty to investment, output, and consumption. Empirical research documents a negative relation, which is consistent with both the option to delay and risk aversion. However, it is less clear how macroeconomic uncertainty affects profitability, as the theoretical underpinnings are less developed and existing empirical analyses yields mixed results.

2.2 Hypothesis Development

This section develops my hypotheses regarding how macroeconomic uncertainty affects profitability. Theories based on risk aversion and the option to delay predict that individuals reduce their consumption in response to macroeconomic uncertainty. Consequently, they buy less, which should reduce corporate revenues. Thus, my first hypothesis is as follows:

Hypothesis 1. *Macroeconomic uncertainty decreases firms' revenues.*

Consumers are not the only agents who alter their decisions when faced with macroeconomic uncertainty. Risk aversion and the option to delay also induce managers to cut costs by reducing investment, for example by halting capital spending, slowing production, using cheaper input materials, renegotiating supplier and labor contracts, or scaling down. These actions in turn affect firms' expenses.[4] Thus, my

[4]Within a principal-agent framework, Riggs-Cragun (2018) shows that optimal contracts em-

second hypothesis is as follows:

Hypothesis 2. *Macroeconomic uncertainty decreases firms' expenses.*

Together, Hypotheses 1 and 2 predict that macroeconomic uncertainty lowers not only revenues but also expenses. As a result, the net effect on profitability is unclear and depends on which of the two effects dominates. Given this ambiguous directional prediction, I state my third hypothesis in the null form:

Hypothesis 3. *Macroeconomic uncertainty does not affect firm profitability.*

Figure 2.1 graphically illustrates my hypothesis development. The left side of the chart depicts Hypothesis 1 and shows that macroeconomic uncertainty negatively impacts profitability through its effect on consumption. Macroeconomic uncertainty decreases consumption, which decreases revenue, which in turn decreases profits. The right side of the chart depicts Hypothesis 2 and shows that macroeconomic uncertainty positively impacts profitability through its effect on investment. Macroeconomic uncertainty decreases investment, which decreases expenses, which in turn increases profits. However, the sign of macroeconomic uncertainty's effect on overall profitability is ambiguous, because as Hypothesis 3 implies, it depends on the relative strength of the expense and revenue effects.

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phasize cost-cutting over revenue growth to achieve a desired level of profitability. This is because the outcome of cost-cutting is less uncertain than the outcome of attempts to increase revenue. In consequence, the risk-neutral principal has to compensate the risk-averse manager less. Hence, managers might prefer expense-decreasing actions to revenue-increasing actions to counteract negative macroeconomic uncertainty demand shocks. The survey evidence in Graham et al. (2005) aligns with this theoretical prediction. 79.9% of managers state that they would try to achieve an earnings target by cutting costs, but only 39.1% state that would try to achieve the target via revenue growth.

Figure 1. Hypothesis Development

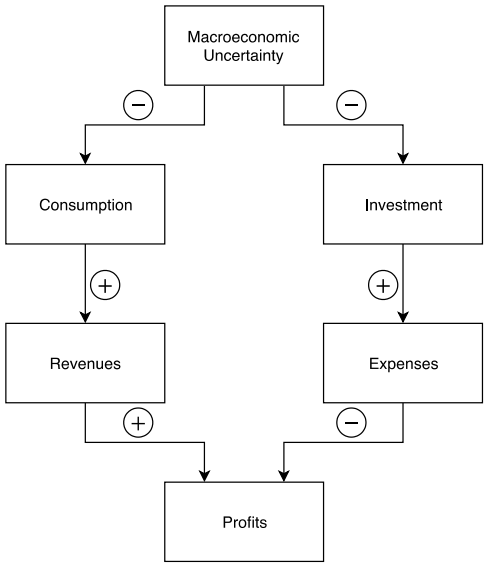


Figure 1 illustrates my hypothesis development.

3

Empirical Results

3.1 US Quarterly Data

3.1.1 Research Design

Building on Fama and French (2000, 2006), Hou et al. (2012) propose the following profitability forecasting model, which has become standard in the literature:

$$E_{i,t+1} = \beta_0 + \beta_1 E_{i,t} + \beta_2 A_{i,t} + \beta_3 D_{i,t} + \beta_4 DD_{i,t} + \beta_5 NegE_{i,t} + \beta_6 AC_{i,t} + \epsilon_{i,t+1} \quad (1)$$

where E denotes seasonally adjusted earnings before extraordinary items scaled by total assets, A denotes log total assets, D denotes dividends scaled by total assets, DD is an indicator that the firm pays a dividend, $NegE$ is an indicator that the firm is making a loss, and AC denotes accruals scaled by total assets.

Li et al. (2014) expand model (1) by including macroeconomic growth expectations (GE), yielding:

$$E_{i,t+1} = \beta_0 + \beta_1 GE_t + \beta_2 E_{i,t} + \beta_3 A_{i,t} + \beta_4 D_{i,t} + \beta_5 DD_{i,t} + \beta_6 NegE_{i,t} + \beta_7 AC_{i,t} + \epsilon_{i,t+1} \quad (2)$$

Following the real options and risk aversion literatures discussed in Sections 2.1.1 and 2.1.2, I further extend (2) by adding macroeconomic uncertainty (MU):[1]

$$\begin{aligned} DV_{i,t+1} &= \beta_1 GE_t^{\text{US}} + \beta_2 MU_t^{\text{US}} + \beta_3 A_{i,t} + \beta_4 D_{i,t} + \beta_5 DD_{i,t} + \beta_6 NegE_{i,t} + \\ &\quad \beta_7 AC_{i,t} + \Gamma_i + \epsilon_{i,t+1} \end{aligned} \tag{3}$$

where DV denotes the dependent variable, which can be revenues (Rev), net expenses (X), or earnings (E), all scaled by average total assets. To control for constant firm characteristics, I drop the lagged dependent variable from the Hou et al. (2012) model and include firm fixed effects, Γ_i.[2] Consistent with prior literature, I measure macroeconomic growth expectations (GE^{US}) via aggregate US market stock returns (Leahy and Whited 1996, Bloom et al. 2007, Baker and Bloom 2013). Further, I employ Baker et al.'s (2016) newspaper-based Economic Policy Uncertainty Index (EPUI) as a plausibly exogenous measure of US macroeconomic uncertainty (MU^{US}). Specifically, while it is likely that aggregate economic policy affects individual firms, I assume that individual firms do not affect aggregate economic policy. EPUI is constructed on a monthly basis from articles published in 10 large US newspapers (USA Today, the Miami Herald, the Chicago Tribune, the Washington Post, the Los Angeles

[1]Kellogg (2014) and Bloom et al. (2018) argue it is crucial to simultaneously consider both aggregate growth expectations and uncertainty. Specifically, macroeconomic uncertainty spikes following adverse shocks to growth expectations such as 9/11, the Gulf Wars, the Cuban missile crisis, President's Kennedy's assassination, and the financial crisis of 2009-2011 (Bloom 2014). However, corporate profitability also varies with aggregate growth expectations, resulting in correlated omitted variable bias.

[2]In contrast to Hou et al. (2012), whose focus is earnings prediction, this paper aims to determine causality and thus seeks to control for factors that potentially confound the relation between corporate outcomes and macroeconomic uncertainty. Fixed effects control for a variety of constant factors, such as industry- or location-specific institutional factors. However, they also prevent the incorporation of the lagged dependent variable in the regression model, as a fixed effects model featuring the lagged dependent variable among the explanatory variables will produce biased and inconsistent estimates, especially when the number of observations per group is small, as it is the case in firm-level panel data (Nickell 1981). However, I repeat all tests using a lagged dependent variable instead of a fixed effects model. The results are discussed in Section 3.4.3. All inferences remain unchanged.

Times, the Boston Globe, the San Francisco Chronicle, the Dallas Morning News, the Houston Chronicle, and the Wall Street Journal) containing the terms *uncertainty* or *uncertain*, *economic* or *economy*, and one or more of the terms *congress*, *legislation*, *white house*, *regulation*, *federal reserve*, or *deficit*. The data are available starting in 1985. Details on EPUI's construction are available on www.policyuncertainty.com. In the following computations, I scale EPUI by 100 to facilitate interpretation.[3]

EPUI improves upon alternative macroeconomic uncertainty measures such as realized or implied stock return volatilities and macroeconomic forecaster disagreement. While the correlation across these measures is generally high,[4] market-based measures only incorporate information related to public, but not private firms, which account for approximately two-thirds of overall US employment. However, I evaluate the robustness of my findings to alternative aggregate growth expectation and uncertainty measures in Section 3.4. My inferences remain unchanged.

3.1.2 Data

EPUI is available starting in 1985 at a monthly frequency. To match EPUI's time-series as closely as possible with firm-level financial data, I start my analysis using quarterly US financial reports. It is convenient to begin with the US because other countries, such as Germany and the UK, do not require quarterly reporting, although I do consider longer fiscal periods in a global sample in Section 3.4.3.

[3]Different types of macroeconomic uncertainty affect economic agents differently (Bianchi et al. 2019). However, this paper is agnostic about specific types of macroeconomic uncertainty and tests the effects of macroeconomic uncertainty on firm outcomes more generally. To ensure that my results are not driven by one specific type of macroeconomic uncertainty, i.e., policy uncertainty, I reestimate my tests using a range of uncertainty measures capturing different types of macroeconomic uncertainty in Section 3.4. My results generalize across different types of macroeconomic uncertainty.

[4]For example, the correlation between EPUI and the Chicago Board Options Exchange's VIX is 0.58.

Table 3.1 Panel A presents summary statistics for all variables employed in the US quarterly analysis. I obtain accounting data from Compustat. The sample spans from 1988, the first year for which cash flow statement data are available, to 2018. All continuous firm-level variables are computed as seasonally adjusted changes, scaled by average total assets, and winsorized at the 1st and 99th percentiles to mitigate outlier effects.

Table 1. US Quarterly Data: Descriptive Statistics and Correlation Matrix

Panel A. Descriptive Statistics

Variable	N	Mean	StD	P1	P25	Median	P75	P99
GE_t^{US}	526,163	0.03	0.08	-0.22	-0.02	0.03	0.07	0.22
MU_t^{US}	526,163	1.12	0.37	0.57	0.80	1.03	1.35	2.11
Rev_t	526,163	0.02	0.10	-0.35	-0.01	0.01	0.04	0.46
X_t	526,163	0.02	0.17	-0.77	-0.01	0.01	0.05	0.78
E_t	526,163	0.00	0.12	-0.54	-0.01	0.00	0.01	0.59
$COGS_t$	526,163	0.01	0.10	-0.39	-0.01	0.00	0.03	0.44
OX_t	526,163	0.01	0.07	-0.36	0.00	0.00	0.01	0.39
NOX_t	526,163	0.00	0.06	-0.30	0.00	0.00	0.01	0.31
GP_t	526,163	0.01	0.07	-0.28	-0.01	0.00	0.02	0.33
OP_t	526,163	0.00	0.08	-0.34	-0.01	0.00	0.01	0.39
A_t	526,163	5.90	2.66	-0.82	4.09	6.03	7.79	11.51
D_t	526,163	0.00	0.00	-0.01	0.00	0.00	0.00	0.02
DD_t	526,163	0.34	0.47	0.00	0.00	0.00	1.00	1.00
$NegE_t$	526,163	0.39	0.49	0.00	0.00	0.00	1.00	1.00
AC_t	526,163	0.00	0.13	-0.64	-0.02	0.00	0.01	0.60

Panel B. Correlation Matrix

Variable	GE_t^{US}	MU_t^{US}	Rev_{t+1}	X_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}	GP_{t+1}	OP_{t+1}	A_t	D_t	DD_t	$NegE_t$	AC_t	AC_t
GE_t^{US}	1.00	-0.14*	0.04*	0.02*	0.00	0.03*	0.02*	-0.01*	0.02*	0.00	-0.01*	0.00	0.01*	-0.03*	0.01*	0.01*
MU_t^{US}	-0.06*	1.00	-0.09*	-0.07*	0.02*	-0.08*	-0.05*	0.00	-0.03*	0.02*	0.08*	0.00	0.02*	0.05*	0.00*	0.00
Rev_{t+1}	0.04*	-0.13*	1.00	0.54*	0.12*	0.71*	0.26*	0.05*	0.53*	0.21*	-0.02*	0.01*	-0.02*	-0.14*	0.02*	0.02*
X_{t+1}	0.02*	-0.12*	0.70*	1.00	-0.73*	0.58*	0.49*	0.54*	0.08*	-0.40*	-0.01*	0.01*	-0.01*	-0.06*	-0.04*	0.02*
E_{t+1}	0.03*	-0.01*	0.30*	-0.27*	1.00	-0.14*	-0.38*	-0.63*	0.34*	0.69*	-0.02*	0.00*	-0.01*	-0.03*	0.07*	0.07*
$COGS_{t+1}$	0.02*	-0.13*	0.77*	0.73*	0.04*	1.00	0.00	0.04*	-0.16*	-0.16*	0.01*	0.01*	0.00*	-0.09*	-0.01*	-0.01*
OX_{t+1}	0.02*	-0.11*	0.46*	0.56*	-0.14*	0.32*	1.00	0.04*	0.39*	-0.52*	-0.01*	0.00	-0.01*	-0.03*	-0.06*	-0.06*
NOX_{t+1}	0.00	-0.02*	0.22*	0.43*	-0.21*	0.13*	0.08*	1.00	0.03*	-0.01*	-0.02*	0.00*	-0.01*	0.02*	-0.02*	-0.02*
GP_{t+1}	0.03*	-0.08*	0.69*	0.36*	0.49*	0.24*	0.46*	0.25*	1.00	0.51*	-0.04*	0.00	-0.03*	-0.07*	0.04*	0.04*
OP_{t+1}	0.02*	-0.02*	0.40*	-0.02*	0.75*	0.08*	-0.16*	0.26*	0.65*	1.00	-0.04*	0.00	-0.02*	-0.04*	0.09*	0.09*
A_t	0.00*	0.09*	0.00	-0.04*	-0.01*	0.00	-0.03*	-0.02*	-0.02*	-0.02*	1.00	0.04*	0.48*	-0.41*	0.03*	0.03*
D_t	0.00	-0.01*	0.04*	0.01*	0.01*	0.03*	0.01*	0.00*	0.02*	0.01*	0.23*	1.00	0.20*	-0.06*	0.00	0.00
DD_t	0.01*	0.02*	-0.03*	-0.06*	-0.01*	-0.02*	-0.06*	-0.02*	-0.04*	-0.02*	0.49*	0.48*	1.00	-0.34*	0.01*	0.01*
$NegE_t$	-0.02*	0.05*	-0.20*	-0.09*	-0.12*	-0.14*	-0.11*	0.00	-0.16*	-0.12*	-0.40*	-0.20*	-0.34*	1.00	-0.08*	-0.08*
AC_t	0.01*	-0.01*	0.05*	0.01*	0.07*	0.04*	-0.02*	-0.02*	0.05*	0.07*	0.01*	0.01*	0.01*	-0.12*	1.00	1.00

Table 1 presents the US quarterly sample descriptive statistics (Panel A) and correlation matrix (Panel B). * indicates significance at the 1% level. Pearson (Spearman) correlations are above (below) the diagonal. Variable definitions are in Appendix A.

Macroeconomic growth expectations (GE^{US}), proxied by aggregate stock returns, average 3% with a standard deviation of 8%. The GE^{US} distribution is fairly symmetric with a median equal to mean, and 1st (-22%) and 99th (22%) percentiles of similar absolute magnitude. Figure 3.1 plots EPUI over time to gain understanding of the variability in this measure. NBER recessions are shaded in grey, and dashed red lines depict the one-standard-deviation confidence interval. The index spikes during times of macroeconomic turmoil, such as the Gulf Wars, the Russian debt crisis, 9/11, the Lehman collapse, and the recent US government shutdowns.[5]

[5]I use the Augmented Dickey and Fuller (1979) test to evaluate whether EPUI is stationary. The test yields a MacKinnon (1994) p-value of 0.00, which is evidence that EPUI is indeed stationary over time.

Figure 2. Economic Policy Uncertainty Index

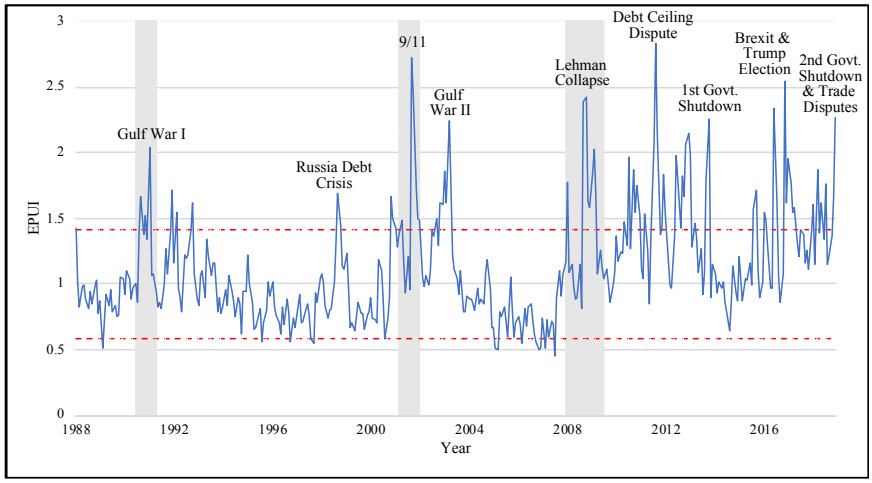


Figure 2 plots Baker et al.'s (2016) US Economic Policy Uncertainty Index over time. NBER recessions are shaded in grey. Red dashed lines depict the one-standard-deviation confidence interval.

Revenues (Rev) and net expenses (X) display right skewness with means and medians of 0.02 and 0.01 and vary considerably with standard deviations and interquartile ranges of 0.10 and 0.17, and 0.05 and 0.06. The distributions of gross profit (GP), operating profit (OP), and earnings (E) are approximately symmetric around 0 but experience increasing variability the more expense accounts are included, with standard deviations of 0.07, 0.08, and 0.12. Hence, net non-operating expenses induce more profit variability than COGS and net operating expenses. In contrast, the volatility of expense accounts themselves decreases as one moves down the income statement, with standard deviations of 0.10, 0.07, and 0.06 for cost of goods sold ($COGS$), net operating expenses (OX), and net non-operating expenses (NOX). Dividends (D) tend to be small, with 1st and 99th percentiles of -0.01 and 0.02. 34% of firms pay a dividend, and 39% make losses. Lastly, accruals are volatile around zero, with large tails. While the interquartile range is only 0.03, the difference between the 1st and 99th percentile is 1.24.

Table 3.1 Panel B presents the correlation matrix. Not surprisingly, overall earnings correlate increasingly positively with revenue (0.12), gross profit (0.34), and operating profit (0.69), and increasingly negatively with net expenses (-0.73), COGS (-0.14), net operating expenses (-0.38), and net non-operating expenses (-0.63). Firms that do not pay a dividend have higher earnings. Loss firms are generally smaller. Macroeconomic growth expectations (GE^{US}) are negatively associated with macroeconomic uncertainty, consistent with the notion that uncertainty tends to be low in good times and high in bad times (Bloom 2009, Bianchi et al. 2017). With respect to firm-level variables, macroeconomic growth expectations are positively correlated with revenues, net expenses, profits, COGS, and net operating expenses, but negatively

correlated with net non-operating expenses. Macroeconomic uncertainty correlates negatively not only with revenues but also with expenses. This suggests that macroeconomic uncertainty not only discourages consumers from purchasing but also induces managers to anticipate and counteract the adverse effect of decreased consumption on corporate profits by cutting expenses. The net effect can be observed by moving from one income statement subtotal to the next. While macroeconomic uncertainty's Spearman correlation with revenues is strongly negative (-0.13), the negative correlation decreases when moving to gross profits (-0.08), to operating profits (-0.02), and finally to earnings (-0.01). For Pearson correlations, the effect sign even turns positive for operating profit (0.02) and earnings (0.02). Drawing strong conclusions from these correlations, however, would be premature given the potential for confounding factors. For example, dividend-paying firms (DD) tend to be larger and more mature and exhibit a positive (negative) association with macroeconomic uncertainty (revenue growth). This implies the possibility that some firm factors may explain, at least partially, the association between macroeconomic uncertainty and profitability. To more formally rule out firm factors as confounds, I turn to multivariate regression analysis to formally control for such possibilities.

3.1.3 Main Results

Revenues

Table 3.2 Panel A columns 1 and 2 test Hypothesis 1 by estimating Equation (3) for one-quarter-ahead revenues. Standard errors are clustered by firm and quarter. Growth expectations increase revenues before (0.028, t = 2.04) and after (0.024, t = 2.00) controls. A 9% increase in aggregate stock market returns, which equals

GE^{US}'s interquartile range (0.09), increases revenues by 0.22% (= 0.09 × 0.024) of total assets, which is 10.8% of *Rev*'s mean (0.02) and median (0.01). In contrast, macroeconomic uncertainty lowers one-quarter-ahead revenues. An EPUI increase equivalent to MU^{US}'s interquartile range (0.55) decreases revenues by 1.38% (= -0.025 × 0.55) and 0.45% (= -0.018 × 0.55) of total assets before and after controls, which again is large relative to *Rev*'s mean and median and the effect of growth expectations.

Table 2. US Quarterly Data: Macroeconomic Uncertainty and Corporate Outcomes

Panel A. One Quarter Ahead

Variable	(1) Rev_{t+1}	(2) Rev_{t+1}	(3) X_{t+1}	(4) X_{t+1}	(5) E_{t+1}	(6) E_{t+1}
GE_t^{US}	0.028**	0.024**	0.018	0.015	0.012	0.010
	(2.04)	(2.00)	(0.90)	(0.81)	(1.21)	(1.04)
MU_t^{US}	**-0.025*** **	**-0.018*** **	**-0.032*** **	**-0.027*** **	**0.006*** **	**0.008*** **
	(-8.86)	**(-7.83)**	**(-9.45)**	**(-8.33)**	**(4.46)**	**(6.07)**
A_t		-0.015***		-0.012***		-0.005***
		(-22.99)		(-13.09)		(-7.38)
D_t		0.154**		0.338***		-0.177**
		(2.06)		(3.44)		(-2.57)
DD_t		-0.002*		0.003**		-0.005***
		(-1.95)		(2.35)		(-9.08)
$NegE_t$		-0.031***		-0.019***		-0.013***
		(-29.44)		(-16.58)		(-17.13)
AC_t		0.006**		-0.033***		0.038***
		(2.11)		(-4.01)		(5.58)
Observations	526,163	526,163	526,163	526,163	526,163	526,163
Adjusted R-squared	0.137	0.161	0.077	0.082	0.026	0.030
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel B. Two Quarters Ahead

Variable	(1) Rev_{t+2}	(2) Rev_{t+2}	(3) X_{t+2}	(4) X_{t+2}	(5) E_{t+2}	(6) E_{t+2}
GE_t^{US}	0.045***	0.042***	0.037**	0.033**	0.010	0.010
	(3.70)	(3.80)	(2.06)	(1.97)	(1.05)	(1.03)
MU_t^{US}	**-0.021*** **	**-0.015*** **	**-0.029*** **	**-0.024*** **	**0.007*** **	**0.008*** **
	(-7.70)	**(-6.40)**	**(-8.42)**	**(-7.35)**	**(5.52)**	**(6.31)**
A_t		-0.018***		-0.017***		-0.003***
		(-25.74)		(-18.18)		(-4.97)
D_t		-0.088		0.184**		-0.265***
		(-1.25)		(2.10)		(-4.00)
DD_t		-0.001		0.003**		-0.004***
		(-1.42)		(2.39)		(-7.31)
$NegE_t$		-0.021***		-0.018***		-0.003***
		(-22.83)		(-15.47)		(-4.83)
AC_t		0.003		0.048***		-0.036***
		(1.07)		(6.09)		(-5.76)
Observations	504,790	504,790	504,679	504,679	505,455	505,455
Adjusted R-squared	0.135	0.157	0.078	0.086	0.027	0.029
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel C. Three Quarters Ahead

Variable	(1) Rev_{t+3}	(2) Rev_{t+3}	(3) X_{t+3}	(4) X_{t+3}	(5) E_{t+3}	(6) E_{t+3}
GE_t^{US}	0.059***	0.056***	0.067***	0.061***	-0.004	-0.003
	(5.28)	(5.43)	(4.92)	(5.04)	(-0.50)	(-0.36)
MU_t^{US}	**-0.016*** **	**-0.010*** **	**-0.025*** **	**-0.018*** **	**0.008*** **	**0.008*** **
	(-6.53)	**(-4.75)**	**(-7.68)**	**(-6.30)**	**(4.94)**	**(5.23)**
A_t		-0.021***		-0.022***		-0.001**
		(-26.91)		(-21.76)		(-2.17)
D_t		-0.181**		0.048		-0.229***
		(-2.13)		(0.57)		(-2.99)
DD_t		-0.001		0.003***		-0.004***
		(-0.93)		(2.98)		(-7.41)
$NegE_t$		-0.010***		-0.017***		0.007***
		(-12.09)		(-12.89)		(7.55)
AC_t		0.002		0.119***		-0.097***
		(0.92)		(15.82)		(-16.36)
Observations	487,829	487,829	487,731	487,731	488,417	488,417
Adjusted R-squared	0.129	0.153	0.076	0.093	0.028	0.039
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel D. Four Quarters Ahead

Variable	(1) Rev_{t+4}	(2) Rev_{t+4}	(3) X_{t+4}	(4) X_{t+4}	(5) E_{t+4}	(6) E_{t+4}
GE_t^{US}	0.056***	0.054***	0.079***	0.070***	-0.019**	-0.014*
	(4.66)	(4.80)	(5.36)	(5.58)	(-2.04)	(-1.90)
MU_t^{US}	**-0.009*** **	**-0.004* **	**-0.018*** **	**-0.008** **	**0.008*** **	**0.004*** **
	(-3.63)	**(-1.73)**	**(-4.73)**	**(-2.44)**	**(3.88)**	**(2.74)**
A_t		-0.024***		-0.027***		0.001
		(-27.63)		(-23.75)		(1.04)
D_t		-0.122		-0.068		-0.043
		(-1.51)		(-0.75)		(-0.70)
DD_t		0.000		0.001		-0.000
		(0.47)		(0.80)		(-0.48)
$NegE_t$		0.008***		-0.043***		0.051***
		(8.89)		(-28.46)		(38.38)
AC_t		-0.004		0.210***		-0.178***
		(-1.52)		(24.38)		(-25.86)
Observations	472,138	472,138	472,076	472,076	472,591	472,591
Adjusted R-squared	0.125	0.154	0.075	0.122	0.029	0.090
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel E. Five Quarters Ahead

Variable	(1) Rev_{t+5}	(2) Rev_{t+5}	(3) X_{t+5}	(4) X_{t+5}	(5) E_{t+5}	(6) E_{t+5}
GE_t^{US}	0.038***	0.034***	0.065***	0.059***	-0.026***	-0.024***
	(2.92)	(2.89)	(4.12)	(4.04)	(-3.86)	(-3.79)
MU_t^{US}	**-0.003**	**0.003**	**-0.009*** **	**-0.001**	**0.006*** **	**0.003** **
	(-1.18)	**(1.11)**	**(-2.67)**	**(-0.19)**	**(3.63)**	**(2.22)**
A_t		-0.024***		-0.031***		0.004***
		(-27.33)		(-24.32)		(5.23)
D_t		-0.132*		-0.045		-0.112*
		(-1.65)		(-0.50)		(-1.73)
DD_t		-0.000		0.002*		-0.002***
		(-0.24)		(1.93)		(-4.55)
$NegE_t$		-0.000		-0.020***		0.020***
		(-0.00)		(-14.97)		(19.92)
AC_t		0.001		0.028***		-0.024***
		(0.31)		(4.18)		(-4.81)
Observations	456,280	456,280	456,220	456,220	456,709	456,709
Adjusted R-squared	0.119	0.148	0.072	0.090	0.028	0.033
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel F. Six Quarters Ahead

Variable	(1) Rev_{t+6}	(2) Rev_{t+6}	(3) X_{t+6}	(4) X_{t+6}	(5) E_{t+6}	(6) E_{t+6}
GE_t^{US}	0.020	0.016	0.041**	0.034**	-0.018***	-0.016***
	(1.53)	(1.33)	(2.46)	(2.21)	(-2.84)	(-2.65)
MU_t^{US}	**0.000**	**0.006** **	**-0.004**	**0.004**	**0.005*** **	**0.002**
	(0.10)	**(2.15)**	**(-1.21)**	**(1.10)**	**(2.64)**	**(1.31)**
A_t		-0.024***		-0.031***		0.005***
		(-26.71)		(-24.03)		(6.50)
D_t		-0.117		-0.049		-0.084
		(-1.60)		(-0.58)		(-1.38)
DD_t		-0.001		0.002*		-0.003***
		(-1.08)		(1.68)		(-5.09)
$NegE_t$		-0.000		-0.016***		0.015***
		(-0.23)		(-12.37)		(16.54)
AC_t		-0.001		0.020***		-0.020***
		(-0.56)		(2.91)		(-3.76)
Observations	439,228	439,228	439,114	439,114	439,962	439,962
Adjusted R-squared	0.114	0.143	0.069	0.087	0.027	0.030
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel G. Seven Quarters Ahead

Variable	(1) Rev_{t+7}	(2) Rev_{t+7}	(3) X_{t+7}	(4) X_{t+7}	(5) E_{t+7}	(6) E_{t+7}
GE_t^{US}	0.007	0.002	0.030*	0.024	-0.023***	-0.021***
	(0.56)	(0.21)	(1.74)	(1.43)	(-2.91)	(-2.71)
MU_t^{US}	**0.003**	**0.008*** **	**-0.000**	**0.008** **	**0.003** **	**0.001**
	(1.12)	**(3.08)**	**(-0.03)**	**(2.29)**	**(2.24)**	**(0.73)**
A_t		-0.023***		-0.031***		0.005***
		(-25.82)		(-24.10)		(8.02)
D_t		-0.104		0.004		-0.123*
		(-1.36)		(0.04)		(-1.80)
DD_t		-0.002*		0.001		-0.003***
		(-1.92)		(1.04)		(-4.58)
$NegE_t$		0.001		-0.013***		0.014***
		(0.74)		(-10.98)		(16.80)
AC_t		-0.005*		0.011		-0.015***
		(-1.89)		(1.42)		(-2.73)
Observations	425,001	425,001	424,905	424,905	425,628	425,628
Adjusted R-squared	0.111	0.138	0.068	0.084	0.028	0.031
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel H. Eight Quarters Ahead

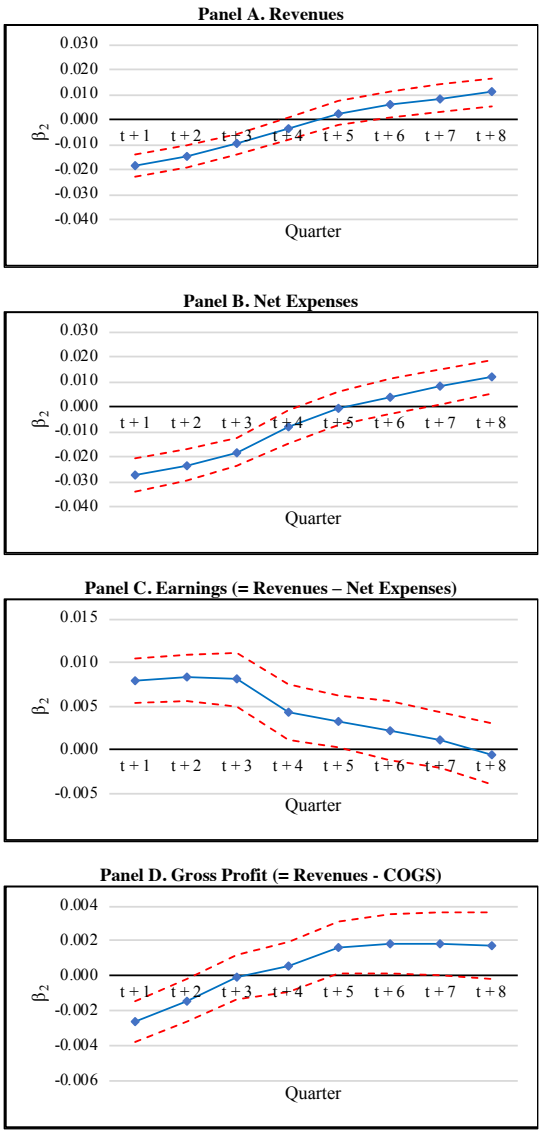
Variable	(1) Rev_{t+8}	(2) Rev_{t+8}	(3) X_{t+8}	(4) X_{t+8}	(5) E_{t+8}	(6) E_{t+8}
GE_t^{US}	-0.006	-0.010	0.014	0.008	-0.019***	-0.017***
	(-0.51)	(-0.94)	(0.92)	(0.53)	(-2.87)	(-2.66)
MU_t^{US}	**0.006***	**0.011*** **	**0.005**	**0.012*** **	**0.001**	**-0.000**
	(1.85)	**(3.72)**	**(1.32)**	**(3.49)**	**(0.89)**	**(-0.26)**
A_t		-0.022***		-0.029***		0.005***
		(-25.76)		(-23.53)		(6.83)
D_t		-0.116		-0.094		-0.055
		(-1.57)		(-1.03)		(-0.80)
DD_t		-0.001*		0.001		-0.002***
		(-1.66)		(0.93)		(-4.68)
$NegE_t$		0.002***		-0.008***		0.011***
		(3.19)		(-8.38)		(14.03)
AC_t		-0.005*		0.022***		-0.023***
		(-1.67)		(2.97)		(-3.78)
Observations	411,243	411,243	411,143	411,143	411,923	411,923
Adjusted R-squared	0.111	0.137	0.067	0.082	0.026	0.028
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Table 2 Panels A to H present the results of regressing seasonally adjusted 1- to 8-quarter-ahead revenues (Rev), net expenses (X), and earnings (E) on controls and macroeconomic growth expectations (GE^{US}) and uncertainty (MU^{US}). Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

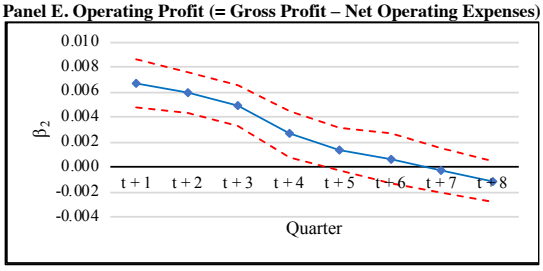
Columns 1 and 2 in Panels B to D extend the analysis to revenues two to four quarters ahead. In the presence of controls, aggregate growth expectation effects are larger in quarters two (0.042, t = 3.80), three (0.056, t = 5.43), and four (0.054, t = 4.80) than in quarter one. However, macroeconomic uncertainty effects steadily decrease over time, decaying from -0.018 in quarter one to -0.015, -0.010, and -0.004 in the subsequent three quarters.

One interpretation of the decay is that consumers initially employ a wait-and-see strategy but eventually consume (Bloom et al. 2018). If this is true, revenues may eventually increase at longer horizons where the uncertainty is more likely to be resolved and consumers begin to satisfy built-up demand. To assess this possibility, I follow Jordà (2005) and graphically display the point estimates of the revenue response to macroeconomic uncertainty obtained from estimating Equation (3) over eight quarters instead of four in Figure 3.2 Panel A. The eight-quarter horizon follows the prior literature (Thomas and Zhang 2002, Binz et al. 2017). Macroeconomic uncertainty's slope coefficient magnitude (95% confidence interval) is presented with a solid (dashed) line. The negative macroeconomic uncertainty effect is statistically negative up to four quarters ahead, becomes insignificant five quarters ahead, and turns significantly positive six to eight quarters ahead. This evidence is precisely consistent with Bloom et al.'s (2018) model, which predicts that macroeconomic uncertainty induces consumers to wait and see before releasing the built-up demand once uncertainty is resolved four quarters after a macroeconomic uncertainty shock.

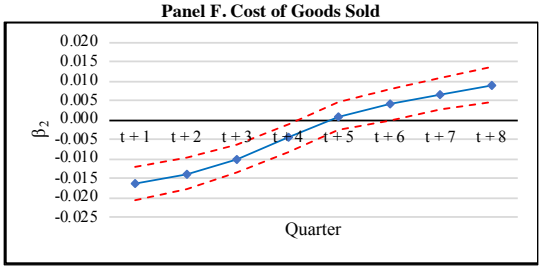
Figure 3. Response Functions: Macroeconomic Uncertainty and Corporate Outcomes



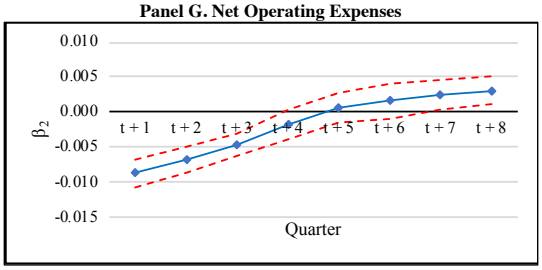
Panel E. Operating Profit (= Gross Profit – Net Operating Expenses)



Panel F. Cost of Goods Sold



Panel G. Net Operating Expenses



Panel H. Net Non-Operating Expenses

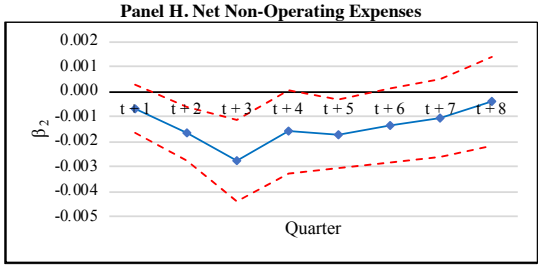


Figure 3 Panels A to H plot response functions (Y axis) of revenues, net expense, earnings, gross profit, operating profit, cost of goods sold, net operating expenses, and net non-operating expenses to a unit shock in economic policy uncertainty over 1 to 8 quarters (X axis) in the future. Responses measured as macroeconomic uncertainty's slope coefficient β_2 (blue solid line) and confidence intervals (red dashed line) are obtained from estimating equation (3) with the full set of controls. Variable definitions are in Appendix A. Standard errors are clustered by firm and by quarter.

In sum, consistent with Hypothesis 1, macroeconomic uncertainty lowers firms' revenues. In times of high macroeconomic uncertainty, consumers reduce their purchases, and firms' revenues fall. The effect of macroeconomic uncertainty on revenues is large and persistent, lasting for four quarters in the future.

Expenses

Consumers are not the only agents affected by macroeconomic uncertainty. Hypothesis 2 predicts that managers cut costs to counteract negative macroeconomic uncertainty demand shocks. To test Hypothesis 2, equation (3) is estimated with net expenses (X) as the dependent variable, where net expenses include all non-revenue components of earnings (i.e., $Rev - E = X$). Results are presented in columns 3 and 4 of Table 3.2 Panel A. While growth expectations are positively associated with net expenses in the univariate analysis (Table 3.1 Panel B), there remains no robust association between net expenses and growth expectations after controlling for other factors. This differs from the positive association growth expectations exhibited with one-quarter-ahead revenues in the presence of controls. Except for accruals, which relate negatively to future net expenses, all other control variables behave as observed in column 2 for revenues.

More importantly, as predicted by Hypothesis 2, I observe that net expenses decrease in macroeconomic uncertainty before (-0.032, t = -9.45) and after (-0.027, t = -8.33) controls. This translates into 1.76% (= -0.032 × 0.55) and 1.49% (= -0.027 × 2.39) scaled net expense decreases in response to an increase in macroeconomic uncertainty equivalent to MU^{US}'s interquartile range, which exceeds the revenue effect magnitudes. Columns 3 and 4 and Figure 3.2 Panel B show that the effect of

macroeconomic uncertainty on net expenses decreases but persists for four quarters before turning insignificant in quarters five and six and positive in quarters seven and eight. In contrast, the effect of growth expectations turns increasingly positive over time. This implies that managers' response to changes in growth expectation (Table 3.2 Panel A), which initially seems absent, is simply delayed and appears in quarters two, three, and four (Table 2 Panels B, C, and D, respectively).

Profits

As Figure 3.2 Panels A and B reveal, the effects of macroeconomic uncertainty on both revenues and expenses exhibit similar trends over time. Given the similarity in estimated effects for revenue and expenses, the overall effect on profitability is not obvious. To assess the impact on profitability and test Hypothesis 3, I estimate Equation (3) with earnings as the dependent variable. The results appear in Table 3.2 Panel A columns 5 and 6.

Consistent with the prior literature, larger, dividend-paying, loss firms and firms with low accruals experience lower subsequent earnings. Moreover, earnings exhibit a positive but statistically insignificant relationship with macroeconomic growth expectations (0.010, t = 1.04), suggesting that increases in revenues that follow a positive growth expectation shock are offset by expenses incurred by the firm. With respect to Hypothesis 3, macroeconomic uncertainty exhibits a statistically positive association with earnings both before (0.006, t = 4.46) and after (0.008, t = 6.07) controls. An interquartile-range increase in macroeconomic uncertainty increases earnings by 0.44% (= 0.008 × 0.55) of total assets. Table 3.2 Panels B to D columns 5 and 6 and Figure 3.2 Panel C demonstrate that the effect remains positive and significant

in initial quarters, but it weakens over time before turning statistically insignificant in quarters six to eight.

3.1.4 Longer Horizon Effects

One may question why managers why managers do not cut expenses even in the absence of macroeconomic uncertainty if they can increase earnings by doing so. To address this, following Kraft et al. (2017), Table 3.3 and Figure 3.3 extends the earnings response function to macroeconomic uncertainty in Table 3.2 and Figure 3.2 Panel C to 20 quarters. Earnings exhibit a significantly negative response to macroeconomic uncertainty 10 to 14 ahead. Thus, it appears that managements' cost cutting in reaction to macroeconomic uncertainty negatively affects profitability in the long-run. To interpret these slope coefficients consider a hypothetical firm with unit profits at time t. Let the firm's asset base grow at 1% per quarter, which is conservative relative to my sample's average asset growth of approximately 5.5% per quarter. The annualized IRR implied by these cash flows is 17.05%, that is, the firm would need a discount rate of at least 17.05% to make the macroeconomic uncertainty induced investment cut a positive NPV project. Using the sample average asset base growth of 5.5% instead of 1% implies an even higher IRR of 35.63%.

Table 26. US Quarterly Data: Macroeconomic Uncertainty and Earnings in the Long Run

Variable	(1) E_{t+1}	(2) E_{t+2}	(3) E_{t+3}	(4) E_{t+4}	(5) E_{t+5}	(6) E_{t+6}	(7) E_{t+7}	(8) E_{t+8}	(9) E_{t+9}	(10) E_{t+10}
GE_t^{US}	0.010	0.010	-0.003	-0.014*	-0.024***	-0.016***	-0.021***	-0.017***	-0.014**	-0.006
	(1.04)	(1.03)	(-0.36)	(-1.90)	(-3.79)	(-2.65)	(-2.71)	(-2.66)	(-2.51)	(-1.07)
MU_t^{US}	**0.008*** **	**0.008*** **	**0.008*** **	**0.004*** **	**0.003** **	**0.002**	**0.001**	**-0.000**	**-0.004** **	**-0.005*** **
	(6.07)	**(6.31)**	**(5.23)**	**(2.74)**	**(2.22)**	**(1.31)**	**(0.73)**	**(-0.26)**	**(-2.29)**	**(-2.88)**
A_t	-0.005***	-0.003***	-0.001**	0.001	0.004***	0.005***	0.005***	0.005***	0.005***	0.005***
	(-7.38)	(-4.97)	(-2.17)	(1.04)	(5.23)	(6.50)	(8.02)	(6.83)	(7.02)	(6.83)
D_t	-0.177**	-0.265***	-0.229***	-0.043	-0.112*	-0.084	-0.123*	-0.055	0.017	0.013
	(-2.57)	(-4.00)	(-2.99)	(-0.70)	(-1.73)	(-1.38)	(-1.80)	(-0.80)	(0.29)	(0.20)
DD_t	-0.005***	-0.004***	-0.004***	-0.000	-0.002***	-0.003***	-0.003***	-0.002***	-0.003***	-0.002***
	(-9.08)	(-7.31)	(-7.41)	(-0.48)	(-4.55)	(-5.09)	(-4.58)	(-4.68)	(-4.79)	(-4.53)
$NegE_t$	-0.013***	-0.003***	0.007***	0.051***	0.020***	0.015***	0.014***	0.011***	0.009***	0.008***
	(-17.13)	(-4.83)	(7.55)	(38.38)	(19.92)	(16.54)	(16.80)	(14.03)	(12.67)	(10.87)
AC_t	0.038***	-0.036***	-0.097***	-0.178***	-0.024***	-0.020***	-0.015***	-0.023***	-0.015***	-0.012**
	(5.58)	(-5.76)	(-16.36)	(-25.86)	(-4.81)	(-3.76)	(-2.73)	(-3.78)	(-3.24)	(-2.18)
Observations	526,163	505,455	488,417	472,591	456,709	439,962	425,628	411,923	399,338	386,724
Adjusted R-squared	0.030	0.029	0.039	0.090	0.033	0.030	0.031	0.028	0.027	0.026
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Variable	E_{t+1}	E_{t+2}	E_{t+3}	E_{t+4}	E_{t+5}	E_{t+6}	E_{t+7}	E_{t+8}	E_{t+9}	E_{t+10}
GE_t^{US}	-0.006	0.000	0.001	0.000	0.006	0.006	0.001	0.002	0.000	0.002
	(-1.17)	(0.07)	(0.21)	(0.08)	(1.17)	(0.91)	(0.18)	(0.46)	(0.07)	(0.29)
MU_t^{US}	**-0.006*** **	**-0.006*** **	**-0.005*** **	**-0.005** **	**-0.003***	**-0.003** **	**-0.003***	**-0.003***	**-0.004***	**-0.003***
	(-2.99)	**(-3.22)**	**(-3.33)**	**(-2.48)**	**(-1.68)**	**(-2.09)**	**(-1.84)**	**(-1.77)**	**(-1.75)**	**(-1.89)**
A_t	0.005***	0.003***	0.003***	0.003***	0.003***	0.002***	0.002***	0.002***	0.002***	0.001***
	(7.06)	(5.49)	(5.64)	(5.08)	(5.14)	(3.84)	(2.77)	(2.95)	(2.90)	(2.62)
D_t	-0.014	-0.092	-0.128	-0.083	-0.055	-0.091	-0.093	-0.077	-0.076	-0.033
	(-0.16)	(-1.04)	(-1.61)	(-1.10)	(-0.75)	(-1.11)	(-1.29)	(-1.16)	(-1.09)	(-0.37)
DD_t	-0.002***	-0.001**	-0.002***	-0.002***	-0.001**	-0.000	-0.000	-0.000	0.001	0.001*
	(-3.04)	(-2.36)	(-3.46)	(-3.08)	(-2.53)	(-0.91)	(-0.13)	(-0.20)	(1.38)	(1.79)
$NegE_t$	0.006***	0.005***	0.003***	0.002***	0.002***	0.002***	0.002***	0.003***	0.002***	0.002***
	(8.93)	(9.40)	(4.34)	(3.88)	(3.73)	(3.93)	(2.85)	(4.35)	(3.89)	(3.79)
AC_t	-0.004	-0.001	-0.002	-0.007	-0.012**	-0.011*	-0.014**	-0.005	-0.001	-0.006
	(-0.70)	(-0.22)	(-0.36)	(-1.21)	(-2.08)	(-1.80)	(-2.40)	(-0.98)	(-0.21)	(-0.93)
Observations	374,701	362,850	351,874	340,981	330,559	320,199	310,649	301,094	291,896	282,833
Adjusted R-squared	0.024	0.023	0.022	0.021	0.021	0.020	0.020	0.019	0.019	0.017
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Table 26 presents the results of regressing seasonally adjusted 1- to 20-quarter-ahead earnings (E) on controls and macroeconomic growth expectations (GE^{US}) and uncertainty (MU^{US}). Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

Figure 4. Long-Run Response Function: Macroeconomic Uncertainty and Corporate Profits

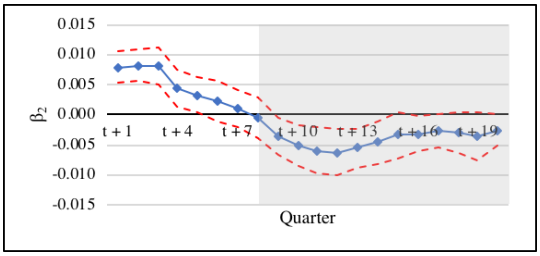


Figure 4 plots response functions (Y axis) of earnings to a unit shock in economic policy uncertainty over 1 to 20 quarters (X axis) in the future. Responses measured as macroeconomic uncertainty's slope coefficient β_2 (blue solid line) and confidence intervals (red dashed line) are obtained from estimating equation (3) with the full set of controls. The shaded area indicates the periods not included in Figure 3. Variable definitions are in Appendix A. Standard errors are clustered by firm and by quarter.

This finding calls into question whether managers' reaction to macroeconomic uncertainty is a positive NPV project as firms' cost of capital typically ranges between 8 and 10% (Penman 2010). However, extending the analysis that far into the future leads to a significant drop in sample size, raising concerns of survivorship bias. Hence, the findings should be interpreted with caution.

Collectively the results show that the net effect of macroeconomic uncertainty on profitability is large and positive. In the short run, managers cut costs more than consumers cut purchases in response to macroeconomic uncertainty. Thus, while prior literature generally documents a slowdown in economic activity, losses are not an immediate implication at the firm level. In the long run, however, the cut in investment leads to a strong reversal of the positive profitability response, which calls into question whether managers' reaction to macroeconomic uncertainty adds shareholder value.

3.1.5 Disaggregated Results

Macroeconomic uncertainty lowers revenues and expenses, but the net effect on earnings is positive. However, the specific decisions through which management achieves the reduction in expenses remain unclear. To shed light on this issue, this section examines how various types of expenses are affected by macroeconomic uncertainty.

Using information from a standard multiple-step income statement, expenses can be separated into three broad categories: Direct input costs, net operating expenses, and net non-operating expenses. Managers can take actions to impact each expense category. For example, managers can decrease direct input costs by using cheaper materials or renegotiating supplier and labor contracts, which reduces COGS. Managers

can decrease net operating expenses by lowering investment in PPE or by cutting labor cost, which reduces depreciation and salary expense, respectively. Managers can also decrease net non-operating expenses by lowering debt levels or by selling PPE, which reduces interest expenses and may lead to one-time gains, respectively.

Table 3.4 examines how COGS, net operating expenses, net non-operating expenses, and their corresponding income statement subtotals, gross profit, operating profit, and earnings, are associated with macroeconomic uncertainty by using each as a dependent variable in Equation (3). Panel A presents the results for one quarter ahead. Columns 1 to 4 show how the effect of macroeconomic uncertainty develops for different subtotals moving down the income statement. To facilitate comparison, columns 1 and 4 replicate the results in Table 3.2 columns 2 and 6.[6]

[6]I repeat the analysis two specific operating expenses, depreciation and SG&A in Section 3.4.6. The inferences for these individual operating expense accounts mirror those for aggregate net operating expenses.

Table 3. US Quarterly Data: Macroeconomic Uncertainty and Disaggregated Corporate Outcomes

Panel A. One Quarter Ahead

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+1}	GP_{t+1}	OP_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}
GE_t^{US}	0.024**	0.010***	0.002	0.010	0.013	0.007	-0.006
	(2.00)	(3.12)	(0.46)	(1.04)	(1.24)	(1.50)	(-1.49)
MU_t^{US}	**-0.018*** **	**-0.003*** **	**0.007*** **	**0.008*** **	**-0.016*** **	**-0.009*** **	**-0.001**
	(-7.83)	**(-4.35)**	**(6.98)**	**(6.07)**	**(-7.86)**	**(-8.85)**	**(-1.44)**
A_t	-0.015***	-0.007***	-0.005***	-0.005***	-0.008***	-0.003***	-0.000
	(-22.99)	(-20.68)	(-12.11)	(-7.38)	(-15.95)	(-9.07)	(-1.59)
D_t	0.154**	-0.005	-0.046	-0.177**	0.154**	0.041	0.101***
	(2.06)	(-0.10)	(-0.99)	(-2.57)	(2.57)	(1.28)	(2.78)
DD_t	-0.002*	-0.002***	-0.003***	-0.005***	0.000	0.001***	0.001***
	(-1.95)	(-4.67)	(-8.19)	(-9.08)	(0.43)	(3.04)	(4.28)
$NegE_t$	-0.031***	-0.015***	-0.010***	-0.013***	-0.017***	-0.005***	0.002***
	(-29.44)	(-26.15)	(-17.12)	(-17.13)	(-22.37)	(-12.82)	(6.06)
AC_t	0.006**	0.015***	0.044***	0.038***	-0.010***	-0.027***	-0.000
	(2.11)	(6.53)	(12.01)	(5.58)	(-3.24)	(-7.72)	(-0.11)
Observations	526,163	526,163	526,163	526,163	526,163	526,163	526,163
Adjusted R-squared	0.161	0.075	0.059	0.030	0.117	0.079	0.001
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel B. Two Quarters Ahead

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+2}	GP_{t+2}	OP_{t+2}	E_{t+2}	$COGS_{t+2}$	OX_{t+2}	NOX_{t+2}
GE_t^{US}	0.042***	0.014***	0.001	0.010	0.028***	0.012***	-0.008*
	(3.80)	(4.00)	(0.24)	(1.03)	(2.93)	(2.98)	(-1.91)
MU_t^{US}	**-0.015*** **	**-0.001** **	**0.006*** **	**0.008*** **	**-0.014*** **	**-0.007*** **	**-0.002*** **
	(-6.40)	**(-2.30)**	**(7.39)**	**(6.31)**	**(-6.92)**	**(-7.45)**	**(-3.03)**
A_t	-0.018***	-0.008***	-0.004***	-0.003***	-0.011***	-0.005***	-0.001**
	(-25.74)	(-21.11)	(-9.01)	(-4.97)	(-19.87)	(-12.97)	(-2.48)
D_t	-0.088	-0.093**	-0.101**	-0.265***	0.000	0.005	0.115***
	(-1.25)	(-2.19)	(-2.22)	(-4.00)	(0.00)	(0.17)	(3.28)
DD_t	-0.001	-0.002***	-0.003***	-0.004***	0.001	0.001***	0.001***
	(-1.42)	(-4.12)	(-7.58)	(-7.31)	(0.71)	(2.79)	(2.80)
$NegE_t$	-0.021***	-0.007***	-0.001*	-0.003***	-0.014***	-0.007***	0.002***
	(-22.83)	(-15.41)	(-1.68)	(-4.83)	(-20.09)	(-16.30)	(5.62)
AC_t	0.003	0.001	0.005	-0.036***	0.002	-0.004	0.022***
	(1.07)	(0.48)	(1.36)	(-5.76)	(0.54)	(-1.36)	(7.50)
Observations	504,790	500,852	499,922	505,455	501,320	499,895	499,908
Adjusted R-squared	0.157	0.071	0.055	0.029	0.121	0.082	0.005
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel C. Three Quarters Ahead

Variable	(1) Rev_{t+3}	(2) GP_{t+3}	(3) OP_{t+3}	(4) E_{t+3}	(5) $COGS_{t+3}$	(6) OX_{t+3}	(7) NOX_{t+3}
GE_t^{US}	0.056***	0.016***	-0.005	-0.003	0.041***	0.020***	-0.002
	(5.43)	(4.04)	(-1.10)	(-0.36)	(5.22)	(5.30)	(-0.59)
MU_t^{US}	**-0.010*** **	**-0.000**	**0.005*** **	**0.008*** **	**-0.010*** **	**-0.005*** **	**-0.003*** **
	(-4.75)	**(-0.16)**	**(6.14)**	**(5.23)**	**(-5.74)**	**(-5.56)**	**(-3.31)**
A_t	-0.021***	-0.008***	-0.002***	-0.001**	-0.014***	-0.006***	-0.001***
	(-26.91)	(-21.08)	(-4.96)	(-2.17)	(-23.08)	(-16.26)	(-3.25)
D_t	-0.181**	-0.140**	-0.103*	-0.229***	-0.030	-0.030	0.073**
	(-2.13)	(-2.45)	(-1.74)	(-2.99)	(-0.51)	(-0.90)	(2.50)
DD_t	-0.001	-0.002***	-0.003***	-0.004***	0.001	0.001***	0.001***
	(-0.93)	(-3.63)	(-7.20)	(-7.41)	(1.06)	(2.79)	(3.77)
$NegE_t$	-0.010***	0.001	0.009***	0.007***	-0.011***	-0.008***	0.001***
	(-12.09)	(1.18)	(15.46)	(7.55)	(-15.01)	(-18.16)	(2.96)
AC_t	0.002	-0.010***	-0.026***	-0.097***	0.015***	0.014***	0.044***
	(0.92)	(-3.92)	(-7.21)	(-16.36)	(4.37)	(4.14)	(15.88)
Observations	487,829	484,699	483,708	488,417	485,098	483,679	483,692
Adjusted R-squared	0.153	0.066	0.057	0.039	0.117	0.078	0.011
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel D. Four Quarters Ahead

Variable	(1) Rev_{t+4}	(2) GP_{t+4}	(3) OP_{t+4}	(4) E_{t+4}	(5) $COGS_{t+4}$	(6) OX_{t+4}	(7) NOX_{t+4}
GE_t^{US}	0.054***	0.011***	-0.008**	-0.014*	0.043***	0.019***	0.004
	(4.80)	(2.67)	(-2.27)	(-1.90)	(5.17)	(4.52)	(1.10)
MU_t^{US}	**-0.004***	**0.001**	**0.003*** **	**0.004*** **	**-0.005** **	**-0.002**	**-0.002***
	(-1.73)	**(0.76)**	**(2.73)**	**(2.74)**	**(-2.59)**	**(-1.64)**	**(-1.92)**
A_t	-0.024***	-0.008***	-0.000	0.001	-0.017***	-0.008***	-0.001***
	(-27.63)	(-20.99)	(-0.69)	(1.04)	(-25.48)	(-18.54)	(-3.97)
D_t	-0.122	-0.060	-0.005	-0.043	-0.050	-0.047	0.005
	(-1.51)	(-1.24)	(-0.10)	(-0.70)	(-0.77)	(-1.39)	(0.17)
DD_t	0.000	0.000	-0.001***	-0.000	0.001	0.001***	-0.001**
	(0.47)	(0.06)	(-2.61)	(-0.48)	(0.92)	(2.82)	(-2.52)
$NegE_t$	0.008***	0.016***	0.027***	0.051***	-0.008***	-0.010***	-0.018***
	(8.89)	(27.91)	(33.85)	(38.38)	(-9.84)	(-21.30)	(-22.08)
AC_t	-0.004	-0.023***	-0.057***	-0.178***	0.023***	0.031***	0.076***
	(-1.52)	(-7.29)	(-15.38)	(-25.86)	(5.85)	(8.67)	(24.11)
Observations	472,138	470,107	469,280	472,591	470,407	469,258	469,270
Adjusted R-squared	0.154	0.078	0.081	0.090	0.121	0.086	0.036
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel E. Five Quarters Ahead

Variable	(1) Rev_{t+5}	(2) GP_{t+5}	(3) OP_{t+5}	(4) E_{t+5}	(5) $COGS_{t+5}$	(6) OX_{t+5}	(7) NOX_{t+5}
GE_t^{US}	0.034***	0.002	-0.015***	-0.024***	0.033***	0.016***	0.007**
	(2.89)	(0.43)	(-4.23)	(-3.79)	(3.66)	(3.89)	(2.17)
MU_t^{US}	**0.003**	**0.002****	**0.001**	**0.003****	**0.001**	**0.001**	**-0.002****
	(1.11)	**(2.07)**	**(1.57)**	**(2.22)**	**(0.45)**	**(0.60)**	**(-2.41)**
A_t	-0.024***	-0.007***	0.001***	0.004***	-0.018***	-0.009***	-0.002***
	(-27.33)	(-18.28)	(2.68)	(5.23)	(-26.29)	(-18.27)	(-6.99)
D_t	-0.132*	-0.078	-0.072	-0.112*	-0.057	0.008	0.007
	(-1.65)	(-1.53)	(-1.41)	(-1.73)	(-0.95)	(0.26)	(0.20)
DD_t	-0.000	-0.000	-0.002***	-0.002***	0.001	0.001***	0.000
	(-0.24)	(-1.15)	(-5.00)	(-4.55)	(0.69)	(3.57)	(1.24)
$NegE_t$	-0.000	0.007***	0.016***	0.020***	-0.007***	-0.008***	-0.003***
	(-0.00)	(12.89)	(21.79)	(19.92)	(-9.18)	(-18.08)	(-7.77)
AC_t	0.001	-0.003	-0.013***	-0.024***	0.005	0.008**	0.005**
	(0.31)	(-1.31)	(-3.98)	(-4.81)	(1.35)	(2.43)	(2.11)
Observations	456,280	454,866	454,085	456,709	455,158	454,062	454,077
Adjusted R-squared	0.148	0.068	0.058	0.033	0.121	0.084	0.004
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel F. Six Quarters Ahead

Variable	(1) Rev_{t+6}	(2) GP_{t+6}	(3) OP_{t+6}	(4) E_{t+6}	(5) $COGS_{t+6}$	(6) OX_{t+6}	(7) NOX_{t+6}
GE_t^{US}	0.016	-0.002	-0.009**	-0.016***	0.019**	0.008	0.007**
	(1.33)	(-0.51)	(-2.42)	(-2.65)	(2.00)	(1.57)	(2.51)
MU_t^{US}	**0.006****	**0.002****	**0.001**	**0.002**	**0.004***	**0.002**	**-0.001***
	(2.15)	**(2.14)**	**(0.65)**	**(1.31)**	**(1.88)**	**(1.28)**	**(-1.81)**
A_t	-0.024***	-0.007***	0.002***	0.005***	-0.018***	-0.009***	-0.002***
	(-26.71)	(-16.99)	(4.10)	(6.50)	(-25.11)	(-19.16)	(-7.39)
D_t	-0.117	-0.099**	-0.088*	-0.084	-0.029	-0.008	-0.012
	(-1.60)	(-2.09)	(-1.91)	(-1.38)	(-0.53)	(-0.22)	(-0.39)
DD_t	-0.001	-0.001**	-0.002***	-0.003***	0.000	0.001***	0.000
	(-1.08)	(-2.51)	(-5.71)	(-5.09)	(0.39)	(2.73)	(1.33)
$NegE_t$	-0.000	0.005***	0.012***	0.015***	-0.005***	-0.007***	-0.003***
	(-0.23)	(10.70)	(19.27)	(16.54)	(-7.28)	(-16.42)	(-7.24)
AC_t	-0.001	-0.004*	-0.014***	-0.020***	0.004	0.008***	0.003
	(-0.56)	(-1.88)	(-4.14)	(-3.76)	(1.33)	(2.60)	(1.15)
Observations	439,228	435,825	434,610	439,962	436,335	434,575	434,598
Adjusted R-squared	0.143	0.066	0.056	0.030	0.118	0.082	0.003
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel G. Seven Quarters Ahead

Variable	(1) Rev_{t+7}	(2) GP_{t+7}	(3) OP_{t+7}	(4) E_{t+7}	(5) $COGS_{t+7}$	(6) OX_{t+7}	(7) NOX_{t+7}
GE_t^{US}	0.002	-0.008**	-0.012***	-0.021***	0.010	0.004	0.008**
	(0.21)	(-2.13)	(-2.77)	(-2.71)	(1.19)	(0.82)	(2.21)
MU_t^{US}	**0.008*** **	**0.002** **	**-0.000**	**0.001**	**0.007*** **	**0.003** **	**-0.001**
	(3.08)	**(2.05)**	**(-0.30)**	**(0.73)**	**(3.12)**	**(2.30)**	**(-1.38)**
A_t	-0.023***	-0.006***	0.003***	0.005***	-0.018***	-0.009***	-0.002***
	(-25.82)	(-16.11)	(5.65)	(8.02)	(-24.39)	(-19.10)	(-8.14)
D_t	-0.104	-0.075	-0.109**	-0.123*	-0.058	0.024	-0.001
	(-1.36)	(-1.46)	(-2.10)	(-1.80)	(-1.04)	(0.68)	(-0.03)
DD_t	-0.002*	-0.001***	-0.002***	-0.003***	-0.000	0.001***	0.001*
	(-1.92)	(-2.59)	(-5.51)	(-4.58)	(-0.34)	(2.72)	(1.80)
$NegE_t$	0.001	0.005***	0.011***	0.014***	-0.004***	-0.005***	-0.002***
	(0.74)	(11.77)	(18.96)	(16.80)	(-6.47)	(-13.84)	(-7.05)
AC_t	-0.005*	-0.005**	-0.009**	-0.015***	0.001	0.003	0.004
	(-1.89)	(-1.97)	(-2.58)	(-2.73)	(0.30)	(0.90)	(1.35)
Observations	425,001	422,351	421,104	425,628	422,774	421,066	421,092
Adjusted R-squared	0.138	0.061	0.054	0.031	0.110	0.076	0.006
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel H. Eight Quarters Ahead

Variable	(1) Rev_{t+8}	(2) GP_{t+8}	(3) OP_{t+8}	(4) E_{t+8}	(5) $COGS_{t+8}$	(6) OX_{t+8}	(7) NOX_{t+8}
GE_t^{US}	-0.010	-0.010***	-0.011***	-0.017***	0.000	0.001	0.005*
	(-0.94)	(-2.91)	(-3.01)	(-2.66)	(0.05)	(0.18)	(1.76)
MU_t^{US}	**0.011*** **	**0.002***	**-0.001**	**-0.000**	**0.009*** **	**0.003*** **	**-0.000**
	(3.72)	**(1.81)**	**(-1.38)**	**(-0.26)**	**(4.10)**	**(3.10)**	**(-0.44)**
A_t	-0.022***	-0.006***	0.002***	0.005***	-0.017***	-0.009***	-0.002***
	(-25.76)	(-16.19)	(5.17)	(6.83)	(-23.94)	(-18.75)	(-7.46)
D_t	-0.116	-0.076	-0.070	-0.055	-0.064	-0.019	-0.003
	(-1.57)	(-1.64)	(-1.47)	(-0.80)	(-1.11)	(-0.53)	(-0.08)
DD_t	-0.001*	-0.001***	-0.002***	-0.002***	-0.000	0.001**	0.000
	(-1.66)	(-2.96)	(-5.75)	(-4.68)	(-0.03)	(2.53)	(0.70)
$NegE_t$	0.002***	0.004***	0.008***	0.011***	-0.002***	-0.004***	-0.002***
	(3.19)	(10.05)	(17.44)	(14.03)	(-3.44)	(-10.94)	(-5.79)
AC_t	-0.005*	-0.006**	-0.015***	-0.023***	0.002	0.006	0.004
	(-1.67)	(-2.04)	(-4.21)	(-3.78)	(0.58)	(1.50)	(1.58)
Observations	411,243	407,774	406,362	411,923	408,221	406,321	406,351
Adjusted R-squared	0.137	0.061	0.051	0.028	0.110	0.076	0.003
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Table 3 Panels A to H present the results of regressing seasonally adjusted 1- to 8-quarter-ahead revenues (Rev), gross profits (GP), operating profits (OP), earnings (E), cost of goods sold (COGS), operating expenses (OX), and non-operating expenses (NOX) on controls and macroeconomic growth expectations (GE^{US}) and uncertainty (MU^{US}). Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

The negative effect of macroeconomic uncertainty on revenues (-0.018, t = -7.83) is partially offset for gross profit (-0.003, t = 4.35), turns positive for operating profit (0.007, t = 6.98), and becomes even more positive for earnings (0.008, t = 6.07). The effect differential from revenue to gross profit (-0.018 vs. -0.003) exceeds that from gross profit to operating profit (-0.003 vs. 0.007), which in turn exceeds that from operating profit to earnings (0.007 vs. 0.008). These results suggest that the effect on COGS is larger than the effect on net operating expenses, and that the effect on net operating expenses is larger than the effect on net non-operating expenses. Columns 5 to 7 examine this conjecture directly by documenting a negative effect of macroeconomic uncertainty on COGS (-0.016, t = -7.86), net operating expenses (-0.009, t = 8.85), and net non-operating expenses (-0.001, t = -1.44). These results suggest that in response to macroeconomic uncertainty, managers cut both variable (COGS) and fixed (net operating expenses, net non-operating expenses) costs. The decrease in variable costs is not sufficient to offset a decrease in revenue, as gross profit remains negatively associated with macroeconomic uncertainty. However, operating profit is increasing in macroeconomic uncertainty, suggesting that additional cuts in fixed costs allow managers to more than offset the revenue declines resulting from increases in macroeconomic uncertainty.

Table 3.4 Panels B to D and Figure 3.2 Panels D to H extend this analysis beyond one quarter ahead. Managers' cost-cutting activities lower COGS (Panel F) and net operating expenses (Panel G) two and three quarters in the future. Afterwards, the effect temporarily becomes insignificant before rebounding in quarters seven and eight. The effect on net non-operating expenses is more volatile and often insignificant, except in quarters two to five where the effect is significantly negative.

Overall, the evidence in this section indicates that managers counteract adverse macroeconomic uncertainty demand shocks by cutting direct input and operating costs. The negative effect of macroeconomic uncertainty on revenues is increasingly offset by expenses as can be observed when moving down the income statement to gross profit, then to operating profit, and finally to overall earnings.

3.2 International Annual Data

So far, I have used quarterly US data to document that macroeconomic uncertainty not only decreases aggregate demand but also induces managers to cut costs, leading to an increasingly positive net effect on profitability as more expense accounts are taken into consideration. This section extends the previous analysis to an international annual sample, where I measure aggregate growth expectations and uncertainty as aggregate world stock market returns and global economic policy uncertainty (EPUI_{g}). Considering an international sample complements the US analysis in three ways. First, it further mitigates endogeneity concerns, as it is even less likely that the fate of an individual firm determines policy uncertainty across the globe. Second, it enhances external validity by verifying that the results persist for a range of countries with different political systems, institutions, and accounting standards (Acemoglu and Robinson 2013, Nobes 2001). To illustrate, firm-level reactions to macroeconomic uncertainty could differ across countries depending on managers' expectations about central banks' monetary policy reaction (Cieslak and Vissing-Jorgensen 2017). Third, examining how the effect of macroeconomic uncertainty varies across countries allows me to exploit cross-country variation in employment protection legislation, which should moderate the extent to which managers can adjust labor costs.

3.2.1 Research Design

For the international analysis, I replace aggregate growth expectations and uncertainty measures from equation (3) with MSCI World Index returns (GE^{g}) and EPUI_{g} (MU^{g}):

$$DV_{i,t+1} = \beta_1 GE_t^{g} + \beta_2 MU_t^{g} + Controls + \Gamma_i + \epsilon_{i,t+1} \quad (4)$$

where all other variables are defined as previously. The time subscript, t, captures years instead of quarters as many countries around the world, such as China, Germany, and the United Kingdom, do not require firms to report on a quarterly basis. *Controls* is the vector of control variables included in (3). Standard errors are clustered by country and year. All continuous variables are measured in changes from last fiscal year and scaled by average total assets.

3.2.2 Data

I measure aggregate world stock market returns as the cumulative fiscal year return on the MSCI World Index, which covers large and mid-cap stocks in 23 developed countries. I download MSCI World Index return data from www.msci.com. EPUI_{g} is Baker et al.'s (2016) fiscal year average purchasing-power-adjusted GDP weighted global economic policy uncertainty index. It is calculated from country-specific EPUI indices for Australia, Brazil, Canada, Chile, China, France, Germany, Greece, India, Ireland, Italy, Japan, Mexico, the Netherlands, Russia, South Korea, Spain, Sweden, the United Kingdom, and the US. I download EPUI_{g} data from www.policyuncertainty.com. EPUI_{g} is available from 1997, which restricts my sample period from 1997 to 2018. Fundamental annual data come from Compustat Global. I use Compustat's Exchange Rate Monthly file and translate all nominal amounts

into USD to ensure comparability. Figure 3.4 plots EPUI_g over time. While highly correlated with EPUI ($\rho = 0.76$), EPUI_g is less pronounced for US-specific events, such as the debt ceiling dispute, and more pronounced for global events, such as the recent trade disputes between the US and the EU and China, which led to an all-time EPUI_g peak at the end of 2018.[7]

[7]I use the Augmented Dickey and Fuller (1979) test to evaluate whether EPUI_g is stationary. The test yields a MacKinnon (1994) p-value of 0.02, which is evidence that EPUI_g is indeed stationary over time.

Figure 5. Global Economic Policy Uncertainty Index

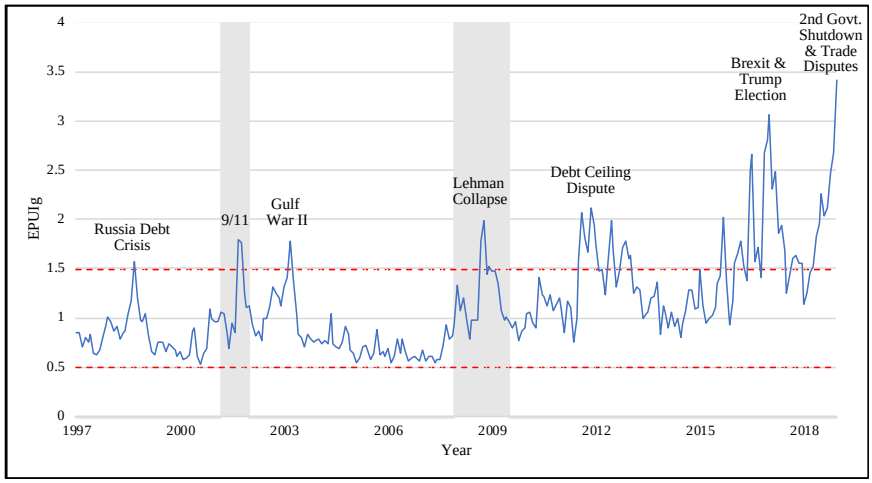


Figure 5 plots Baker et al.'s (2016) global Economic Policy Uncertainty Index (EPUIg) over time. NBER recessions are shaded in grey. Red dashed lines depict the one-standard-deviation confidence interval.

Table 3.5 Panel A presents my international sample composition, which comprises 112 countries, and firm-year means for GE^{g} and MU^{g} by country. As in prior studies (e.g., Li et al. 2014), the US comprises a large share of the overall number of firm-year observations (25.34%). Other countries, such as China (7.22%), India (7.16%), and Japan (9.81%), also contribute large numbers of observations. Panel B shows descriptive statistics for the variables of interest and controls. The numbers are similar to the quarterly US sample data summarized in Table 3.1 Panel A, albeit less dispersed due to the aggregation of quarterly numbers to annual numbers. Panel C presents the correlation matrix, which mirrors the findings in Table 3.1 Panel B. Aggregate growth expectations correlate negatively with macroeconomic uncertainty and positively with revenues, expenses, and profits. Macroeconomic uncertainty correlates negatively with revenues and expenses, but increasingly positively with profits as one proceeds down the income statement. This evidence suggests that negative demand shocks triggered by macroeconomic uncertainty are offset by managers' cost-cutting. However, given that these data still include US firms, it remains unclear whether results generalize outside of the United States.

Table 4. International Annual Data: Sample Composition and Summary Statistics

Panel A. Sample Composition

Country	Firm-Years	% Sample	Mean GE_t^g	Mean MU_t^g	EPL	LTO
Argentina	884	0.20%	1.4%	1.08	2.12	0.20
Australia	18,780	4.25%	-1.2%	1.11	1.57	0.21
Austria	945	0.21%	1.9%	1.05	2.12	0.60
Bahamas	10	0.00%	0.6%	1.26	2.10	.
Bahrain	178	0.04%	1.7%	1.16	.	.
Bangladesh	883	0.20%	-0.4%	1.24	.	0.47
Belgium	1,164	0.26%	2.0%	1.09	2.14	0.82
Belize	4	0.00%	1.7%	1.15	.	.
Bermuda	5,469	1.24%	1.4%	1.15	.	.
Botswana	127	0.03%	1.1%	1.10	.	.
Brazil	3,528	0.80%	2.3%	1.11	1.84	0.44
British Virgin Is.	310	0.07%	1.5%	1.20	.	.
Bulgaria	372	0.08%	1.4%	1.23	.	.
Canada	23,150	5.23%	1.5%	1.06	0.92	0.36
Cayman Islands	6,899	1.56%	1.4%	1.22	.	.
Chile	2,247	0.51%	2.3%	1.08	2.53	0.31
China	31,919	7.22%	1.8%	1.12	3.31	0.87
Colombia	356	0.08%	2.1%	1.15	1.67	0.13
Croatia	804	0.18%	1.6%	1.14	2.32	.
Curaçao	31	0.01%	2.0%	1.16	.	.
Cyprus	562	0.13%	1.5%	1.11	.	.
Czech Rep.	183	0.04%	2.8%	1.05	2.87	0.70
Denmark	1,485	0.34%	1.3%	1.12	2.10	0.35
Ecuador	14	0.00%	0.7%	1.19	2.10	.
Egypt	807	0.18%	0.8%	1.26	.	0.04
Estonia	228	0.05%	2.4%	1.05	1.74	0.82
Falkland Islands	15	0.00%	1.4%	1.30	.	.
Faroe Islands	33	0.01%	2.2%	1.13	.	.
Finland	1,633	0.37%	1.9%	1.13	2.38	0.38
France	7,184	1.62%	1.8%	1.07	2.60	0.63
Gabonese Rep.	9	0.00%	0.2%	1.18	.	.
Germany	7,946	1.80%	1.7%	1.05	2.53	0.83
Ghana	106	0.02%	0.7%	1.20	.	0.04
Gibraltar	40	0.01%	1.3%	1.17	.	.
Greece	2,123	0.48%	1.1%	1.11	2.07	0.45
Guernsey	111	0.03%	0.8%	1.19	.	.
Hong Kong	1,541	0.35%	1.4%	1.19	.	0.61
Hungary	239	0.05%	2.4%	1.06	1.45	0.58
Iceland	115	0.03%	1.8%	1.14	2.04	.
India	31,678	7.16%	2.2%	1.09	3.49	0.51
Indonesia	4,362	0.99%	2.1%	1.10	.	0.62
Ireland	776	0.18%	1.7%	1.05	1.50	0.24
Isle of Man	131	0.03%	1.6%	1.23	.	.
Israel	3,181	0.72%	1.8%	1.14	2.35	0.38
Italy	2,791	0.63%	1.8%	1.11	2.55	0.61
Ivory Coast	66	0.01%	1.1%	1.15	.	.
Jamaica	264	0.06%	1.9%	1.09	1.63	.
Japan	43,384	9.81%	0.8%	1.06	1.62	0.88
Jersey	438	0.10%	1.3%	1.18	.	.
Jordan	1,185	0.27%	1.8%	1.07	.	.
Kazakhstan	127	0.03%	1.7%	1.13	3.20	.
Kenya	308	0.07%	0.3%	1.14	.	.
Korea	11,384	2.57%	1.9%	1.20	2.29	1.00
Kuwait	703	0.16%	1.4%	1.19	.	.
Latvia	318	0.07%	1.8%	1.10	2.57	.
Lebanon	16	0.00%	1.6%	1.07	.	.
Liberia	11	0.00%	1.62%	1.04	.	.
Lithuania	395	0.09%	2.05%	1.09	2.23	.
Luxembourg	368	0.08%	1.11%	1.17	2.28	0.64
Malawi	14	0.00%	0.45%	1.09	.	.
Malaysia	8,743	1.98%	1.20%	1.16	2.71	0.41
Malta	126	0.03%	1.14%	1.15	.	0.47
Marshall Islands	31	0.01%	1.08%	1.23	.	.
Mauritius	266	0.06%	-0.52%	1.13	.	.
Mexico	1,265	0.29%	2.16%	1.13	1.91	0.24
Monaco	29	0.01%	1.98%	1.03	.	.
Morocco	460	0.10%	1.63%	1.09	.	0.14
Namibia	43	0.01%	0.83%	1.19	.	.
Netherlands	1,825	0.41%	2.10%	1.08	2.84	0.67
New Zealand	1,350	0.31%	0.26%	1.10	1.41	0.33
Nigeria	748	0.17%	1.87%	1.09	.	0.13
Norway	2,025	0.46%	1.74%	1.12	2.23	0.35
Oman	785	0.18%	1.98%	1.15	.	.
Pakistan	3,205	0.72%	-1.29%	1.13	.	0.50
Panama	27	0.01%	1.57%	1.16	2.43	.
Papua New Guinea	73	0.02%	2.51%	1.11	.	.
Peru	1,183	0.27%	2.28%	1.10	1.60	0.25
Philippines	1,514	0.34%	1.22%	1.16	.	0.27
Poland	5,102	1.15%	1.49%	1.18	2.20	0.38
Portugal	647	0.15%	2.09%	1.07	3.01	0.28
Qatar	217	0.05%	1.59%	1.18	.	.
Romania	480	0.11%	1.41%	1.22	.	0.52
Russia	2,064	0.47%	1.48%	1.15	2.86	0.81
Saudi Arabia	1,209	0.27%	1.58%	1.19	1.61	0.36
Senegal	2	0.00%	0.88%	1.16	.	.
Serbia	52	0.01%	0.27%	1.21	1.67	0.52
Singapore	6,086	1.38%	1.10%	1.15	.	0.72
Slovakia	73	0.02%	2.21%	1.08	1.81	.
Slovenia	317	0.07%	2.17%	1.06	1.99	.
South Africa	3,134	0.71%	-0.12%	1.07	2.06	0.34
Spain	1,176	0.27%	0.92%	1.20	1.95	0.48
Sri Lanka	1,879	0.42%	2.51%	1.15	.	.
State of Palestine	86	0.02%	1.57%	1.29	.	.
Sudan	12	0.00%	1.28%	1.16	.	.
Swaziland	2	0.00%	0.52%	1.59	.	.
Sweden	5,069	1.15%	1.59%	1.18	2.52	0.53
Switzerland	2,982	0.67%	2.28%	1.06	1.50	0.74
Taiwan	19,841	4.48%	2.12%	1.12	.	0.93
Tanzania	66	0.01%	1.30%	1.10	.	.
Thailand	6,887	1.56%	2.15%	1.12	3.03	0.32
Trinidad & Tobago	145	0.03%	1.51%	1.14	.	.
Tunisia	322	0.07%	0.99%	1.18	2.73	.
Turkey	2,261	0.51%	1.54%	1.20	2.21	0.46
Uganda	40	0.01%	0.69%	1.08	.	.
Ukraine	108	0.02%	0.94%	1.16	.	0.86
UAE	516	0.12%	1.63%	1.15	.	.
United Kingdom	18,231	4.12%	1.32%	1.04	1.18	0.51
USA	112,122	25.34%	2.13%	1.01	0.49	0.26
Venezuela	153	0.03%	1.45%	0.97	3.50	0.16
Vietnam	2,721	0.62%	1.11%	1.28	.	0.57
Zambia	117	0.03%	2.07%	1.08	.	.
Zimbabwe	238	0.05%	0.95%	1.12	.	.
Total	442,389	100.00%	1.59%	1.08	1.46	0.49

Panel B. Descriptive Statistics

Variable	N	Mean	StD	P1	P25	Median	P75	P99
GE_t^g	442,389	0.02	0.05	-0.15	-0.03	0.03	0.05	0.11
MU_t^{EPUIg}	442,389	1.08	0.31	0.63	0.79	1.06	1.24	1.94
Rev_t	442,389	0.07	0.29	-1.05	-0.02	0.03	0.15	1.24
X_t	442,389	0.05	30.14	-1.93	-0.03	0.04	0.16	1.65
E_t	442,389	0.01	0.21	-0.84	-0.02	0.00	0.03	1.06
$COGS_t$	442,389	0.04	0.25	-0.97	-0.02	0.02	0.10	1.12
OX_t	442,389	0.01	0.15	-0.77	0.00	0.01	0.04	0.64
NOX_t	442,389	0.00	0.11	-0.55	-0.01	0.00	0.02	0.50
GP_t	442,389	0.02	0.14	-0.60	-0.01	0.01	0.06	0.64
OP_t	442,389	0.01	0.14	-0.59	-0.02	0.00	0.03	0.71
A_t	442,389	4.97	2.31	-1.09	3.51	4.98	6.47	10.31
D_t	442,389	0.00	0.01	-0.06	0.00	0.00	0.00	0.08
DD_t	442,389	0.41	0.49	0.00	0.00	0.00	1.00	1.00
$NegE_t$	442,389	0.31	0.46	0.00	0.00	0.00	1.00	1.00
AC_t	442,389	0.00	0.23	-0.92	-0.05	0.00	0.05	1.14

Panel C. Correlation Matrix

Variable	GE_t^g	MU_t^{EPUIg}	Rev_{t+1}	X_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}	GP_{t+1}	OP_{t+1}	A_t	D_t	DD_t	$NegE_t$	AC_t
GE_t^g	1.00	-0.04*	0.08*	0.06*	0.01*	0.07*	0.02*	0.00	0.04*	0.01*	0.01*	0.01*	0.00	-0.03*	0.01*
MU_t^{EPUIg}	-0.11*	1.00	-0.06*	-0.06*	0.02*	-0.06*	-0.02*	-0.02*	-0.02*	0.01*	0.06*	-0.02*	-0.02*	0.00*	-0.01*
Rev_{t+1}	0.11*	-0.10*	1.00	0.72*	0.07*	0.82*	0.35*	0.10*	0.57*	0.19*	-0.02*	0.03*	0.01*	-0.10*	0.02*
X_{t+1}	0.09*	-0.12*	0.79*	1.00	-0.59*	0.71*	0.55*	0.47*	0.24*	-0.31*	0.02*	0.03*	0.03*	-0.17*	0.17*
E_{t+1}	0.05*	0.02*	0.28*	-0.18*	1.00	-0.11*	-0.41*	-0.61*	0.30*	0.72*	-0.06*	-0.01*	-0.03*	0.15*	-0.23*
$COGS_{t+1}$	0.10*	-0.11*	0.83*	0.79*	0.09*	1.00	0.12*	0.07*	0.04*	-0.08*	0.00	0.03*	0.02*	-0.12*	0.05*
OX_{t+1}	0.05*	-0.09*	0.49*	0.58*	-0.11*	0.33*	1.00	0.09*	0.46*	-0.50*	0.02*	0.03*	0.02*	-0.11*	0.06*
NOX_{t+1}	0.01*	-0.05*	0.20*	0.41*	-0.31*	0.13*	0.10*	1.00	0.07*	-0.01*	0.01*	0.01*	0.01*	-0.12*	0.21*
GP_{t+1}	0.08*	-0.05*	0.69*	0.44*	0.46*	0.31*	0.52*	0.23*	1.00	0.47*	-0.04*	0.02*	0.00	-0.01*	-0.04*
OP_{t+1}	0.06*	0.00	0.41*	0.07*	0.72*	0.16*	-0.12*	0.23*	0.64*	1.00	-0.06*	0.00*	-0.03*	0.10*	-0.09*
A_t	0.01*	0.05*	0.00*	-0.03*	-0.03*	0.01*	-0.04*	0.00	-0.03*	-0.03*	1.00	0.01*	0.35*	-0.34*	-0.03*
D_t	0.00	-0.04*	0.07*	0.06*	-0.01*	0.06*	0.07*	0.01*	0.05*	0.00	0.12*	1.00	0.23*	-0.07*	0.01*
DD_t	0.00	-0.03*	0.03*	0.01*	-0.03*	0.03*	0.01*	0.00	0.00	-0.02*	0.35*	0.42*	1.00	-0.35*	-0.01*
$NegE_t$	-0.02*	0.01*	-0.15*	-0.19*	0.17*	-0.16*	-0.17*	-0.11*	-0.05*	0.09*	-0.33*	-0.19*	-0.35*	1.00	-0.09*
AC_t	0.02*	-0.02*	0.04*	0.12*	-0.14*	0.06*	0.04*	0.13*	-0.02*	-0.05*	0.00*	0.03*	0.01*	-0.14*	1.00

Table 4 presents the international annual sample composition (Panel A), descriptive statistics (Panel B), and correlation matrix (Panel C). * indicates significance at the 1% level. Pearson (Spearman) correlations are above (below) the diagonal. Variable definitions are in Appendix A.

3.2.3 Results

Table 3.6 Panel A extends Table 3.4 to annual one-year-ahead corporate outcomes for US firms only. Consistent with the quarterly results, macroeconomic uncertainty lowers not only revenues (-0.049, t = -2.82) but also COGS (-0.049, t = -3.46), net operating expenses (-0.031, t = -4.53), and net non-operating expenses (-0.019, t = -3.45). For annual data, managers are able to offset the negative ramifications of decreased revenue through cost of goods sold, as the macroeconomic uncertainty effect turns insignificantly negative for gross profit (-0.002, t = -0.41). Moving down the income statement, one sees that the relationship with macroeconomic uncertainty is increasingly positive for operating profit (0.028, t = 5.01) and earnings (0.050, t = 4.55), as observed at the quarterly level. In terms of economic significance, an increase in macroeconomic uncertainty equal to MU^{g}'s interquartile range (0.45) increases earnings by 2.25% (= 0.050 × 0.45) of total assets.

Table 5. International Annual Data: Macroeconomic Uncertainty and Disaggregated Corporate Outcomes

Panel A. US Only

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+1}	GP_{t+1}	OP_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}
GE_t^g	0.523***	0.155***	-0.048	-0.038	0.366***	0.208***	-0.011
	(5.71)	(5.45)	(-1.31)	(-0.65)	(5.12)	(6.14)	(-0.37)
MU_t^g	**-0.049*** **	**-0.002**	**0.028*** **	**0.050*** **	**-0.049*** **	**-0.031*** **	**-0.019*** **
	(-2.82)	**(-0.41)**	**(5.01)**	**(4.55)**	**(-3.46)**	**(-4.53)**	**(-3.45)**
A_t	-0.053***	-0.028***	-0.025***	-0.037***	-0.025***	-0.003*	0.010***
	(-13.72)	(-18.75)	(-14.68)	(-10.02)	(-8.22)	(-1.68)	(4.44)
D_t	0.014	0.038	-0.104*	-0.178**	-0.014	0.122*	0.049
	(0.18)	(0.75)	(-1.70)	(-2.36)	(-0.20)	(1.84)	(1.39)
DD_t	0.001	0.000	-0.001	0.002	0.000	0.001	-0.002
	(0.15)	(0.06)	(-0.48)	(0.38)	(0.03)	(0.34)	(-1.40)
$NegE_t$	-0.025***	0.023***	0.064***	0.121***	-0.050***	-0.041***	-0.046***
	(-4.46)	(7.85)	(15.72)	(21.74)	(-11.63)	(-12.17)	(-12.73)
AC_t	0.010	-0.018***	-0.048***	-0.225***	0.033***	0.034***	0.123***
	(1.48)	(-4.24)	(-8.01)	(-22.52)	(5.14)	(5.49)	(21.08)
Observations	112,122	112,122	112,122	112,122	112,122	112,122	112,122
Adjusted R-squared	0.139	0.071	0.062	0.098	0.107	0.095	0.039
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel B. All Countries Excluding US

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+1}	GP_{t+1}	OP_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}
GE_t^g	0.392***	0.077*	0.061**	0.054*	0.320***	0.013	0.007
	(3.01)	(1.82)	(2.44)	(1.81)	(3.06)	(0.41)	(0.45)
MU_t^g	**-0.052*** **	**-0.003**	**0.013*** **	**0.027*** **	**-0.052*** **	**-0.016*** **	**-0.010*** **
	(-3.09)	**(-0.68)**	**(2.79)**	**(3.45)**	**(-3.36)**	**(-2.88)**	**(-3.49)**
A_t	-0.047***	-0.023***	-0.027***	-0.041***	-0.022**	0.004	0.010***
	(-5.70)	(-8.77)	(-8.66)	(-6.54)	(-2.53)	(0.98)	(5.01)
D_t	0.307***	0.107**	0.049*	0.028	0.199***	0.053	0.017
	(2.73)	(2.61)	(1.97)	(0.73)	(2.63)	(1.46)	(0.67)
DD_t	-0.005	-0.003	-0.004**	0.003	-0.003	0.001	-0.006***
	(-1.19)	(-1.51)	(-2.56)	(0.70)	(-0.69)	(0.83)	(-2.71)
$NegE_t$	-0.030***	0.013***	0.046***	0.093***	-0.042***	-0.032***	-0.042***
	(-6.28)	(4.67)	(10.90)	(10.57)	(-11.50)	(-9.94)	(-9.43)
AC_t	0.036***	-0.026**	-0.078***	-0.230***	0.070***	0.054***	0.104***
	(3.17)	(-2.45)	(-4.88)	(-9.43)	(5.77)	(4.09)	(18.14)
Observations	330,267	330,267	330,267	330,267	330,267	330,267	330,267
Adjusted R-squared	0.120	0.055	0.041	0.098	0.089	0.052	0.016
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel C. All Countries

Variable	(1) Rev_{t+1}	(2) GP_{t+1}	(3) OP_{t+1}	(4) E_{t+1}	(5) $COGS_{t+1}$	(6) OX_{t+1}	(7) NOX_{t+1}
GE_t^g	0.431***	0.101***	0.027	0.025	0.334***	0.073	0.002
	(3.82)	(2.73)	(0.83)	(0.69)	(3.82)	(1.45)	(0.12)
MU_t^g	**-0.051*** **	**-0.003**	**0.017*** **	**0.032*** **	**-0.052*** **	**-0.019*** **	**-0.012*** **
	(-3.25)	**(-0.69)**	**(3.58)**	**(4.04)**	**(-3.64)**	**(-3.55)**	**(-3.62)**
A_t	-0.048***	-0.025***	-0.026***	-0.040***	-0.023***	0.002	0.010***
	(-7.73)	(-10.89)	(-11.86)	(-8.98)	(-3.59)	(0.61)	(7.10)
D_t	0.206**	0.081***	-0.007	-0.046	0.128*	0.078***	0.027
	(2.10)	(2.83)	(-0.18)	(-0.87)	(1.83)	(3.14)	(1.64)
DD_t	-0.003	-0.001	-0.003	0.004	-0.002	0.001	-0.005***
	(-0.75)	(-0.88)	(-1.64)	(1.54)	(-0.63)	(0.66)	(-3.52)
$NegE_t$	-0.029***	0.016***	0.051***	0.100***	-0.044***	-0.034***	-0.043***
	(-6.76)	(5.31)	(10.03)	(11.31)	(-12.86)	(-10.22)	(-12.39)
AC_t	0.026***	-0.023***	-0.066***	-0.228***	0.056***	0.046***	0.112***
	(2.87)	(-3.22)	(-4.92)	(-14.78)	(4.62)	(4.50)	(17.82)
Observations	442,389	442,389	442,389	442,389	442,389	442,389	442,389
Adjusted R-squared	0.126	0.061	0.050	0.099	0.094	0.068	0.027
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Table 5 presents the results of regressing changes in one-year-ahead revenues (Rev), gross profits (GP), operating profits (OP), earnings (E), cost of goods sold (COGS), operating expenses (OX), and non-operating expenses (NOX) on controls and macroeconomic growth expectations (GE^g) and uncertainty (MU^g) for the US (Panel A), all countries excluding the US (Panel B), and all countries (Panel C). Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter in Panel A, country and quarter in Panels B and C. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

Table 3.6 Panel B tests whether my inferences generalize to countries other than the US by estimating the model for all countries listed in Table 3.5 Panel A after excluding the US. My main inferences remain unchanged. Revenues and expenses decrease in response to macroeconomic uncertainty, and the net effect on profitability is positive. However, there is variation in the effect magnitudes. While similar for revenues and COGS, firms' reduction in net operating (-0.016 vs. -0.031) and non-operating (-0.010 vs. -0.019) expenses is lower in the international sample than in the US sample. This finding suggests that there are institutional differences in adjustment costs across countries that impede managers' ability to cut certain costs quickly. To examine this issue, I exploit cross-country variation in employment protection legislation (EPL), an implicit labor adjustment cost.[8]

3.2.4 Employment Protection Legislation

Existing research suggests that stronger EPL increases the cost of layoffs, not only making it more expensive for management to fire workers in bad or uncertain times but also restraining hiring in good or less uncertain times (Van Long and Siebert 1983, Pissarides 1999). Thus, managers' cost-cutting response to macroeconomic uncertainty and the resulting profitability effect should be weaker for countries with strong EPL. I test this conjecture by examining the interactive effects of macroeconomic uncertainty and EPL. Following prior literature (e.g., Banker et al. 2013), I measure EPL using the Organization for Economic Co-operation's (OECD) "protection of permanent workers against individual dismissal" score, which is part of the

[8]As noted by Banker et al. (2013), capital adjustment costs include opportunity costs that are not measured in accounting systems. In contrast, labor adjustment costs in the form of EPL are readily measurable.

Indicators of Employment Protection dataset.[9] Country-specific EPL scores are presented in Table 3.5 Panel A. More market-oriented countries, such as the US (0.49), the UK (1.18), and Canada (0.92), have low EPL scores, while more government-intervention-oriented countries, such as Venezuela (3.50) and China (3.31), have high EPL scores.

To test for EPL effects, I estimate Equation (4) on the entire global sample, and interact an indicator that takes a value of one when the firm's home country's EPL score is above the sample median and a value of zero if the firm's home country's EPL score is below the sample median or missing ($High\ EPL$) with macroeconomic growth expectations and uncertainty.[10] Before considering the moderating effects of EPL, I first present the estimation without the EPL interaction as a baseline specification. The results are presented in Table 3.6 Panel C. By construction, the point estimates of the global sample fall in between the estimates obtained for the US-only sample (Table 3.6 Panel A) and the non-US sample (Table 3.6 Panel B).

Table 3.7 Panel A presents the regression results examining the effects of EPL. There is no evidence that EPL alters the effect of macroeconomic uncertainty on revenues, COGS, or gross profit. However, the incremental effect on net operating expenses, in which wage expense typically concentrates, is significantly positive (0.019, t = 3.05). That is, managers in countries with higher EPL lay off fewer workers as macroeconomic uncertainty increases. More than half of macroeconomic uncertainty's

[9]I download OECD EPL data from https://www.oecd.org/employment/. The Indicators of Employment Protection dataset includes two alternative EPL measures: Protection of permanent workers against individual and collective dismissals, and regulation on temporary forms of employment. I also estimate my tests using these alternative EPL measures in Section 3.4.4. All inferences remain unchanged.

[10]The results are robust to using OECD's continuous EPL score instead of the indicator as the EPL measure and to excluding countries without EPL data.

main effect on net operating expenses (-0.029, t = -5.99), which captures the effect of macroeconomic uncertainty in low-EPL countries, is offset in a high-EPL regime (-0.029 + 0.019 = -0.010). In turn, the positive effect of macroeconomic uncertainty on operating profit (0.023, t = 4.49) and earnings (0.041, t = 4.61) in low-EPL countries also is attenuated by about half.

Table 6. International Annual Data: Cross-sectional Variation

Panel A. Employment Protection Legislation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+1}	GP_{t+1}	OP_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}
GE_t^g	0.498***	0.127***	-0.009	-0.000	0.371***	0.138***	-0.008
	(4.69)	(4.85)	(-0.31)	(-0.00)	(4.20)	(2.92)	(-0.41)
MU_t^g	-0.054***	-0.006	0.023***	0.041***	-0.051***	-0.029***	-0.016***
	(-3.70)	(-1.55)	(4.49)	(4.61)	(-3.93)	(-5.99)	(-3.83)
GE_t^g × High EPL	-0.145	-0.058	0.080**	0.058	-0.080	-0.144***	0.021**
	(-1.49)	(-1.27)	(2.59)	(1.59)	(-1.01)	(-2.81)	(2.02)
MU_t^g × High EPL	**0.006**	**0.006**	**-0.011***	**-0.019****	**-0.001**	**0.019*****	**0.007****
	(0.78)	**(1.10)**	**(-1.75)**	**(-2.00)**	**(-0.21)**	**(3.05)**	**(2.33)**
A_t	-0.048***	-0.025***	-0.026***	-0.040***	-0.023***	0.002	0.010***
	(-7.78)	(-10.97)	(-11.66)	(-8.84)	(-3.60)	(0.59)	(6.94)
D_t	0.204**	0.080***	-0.005	-0.043	0.127*	0.075***	0.027
	(2.08)	(2.81)	(-0.12)	(-0.82)	(1.82)	(2.91)	(1.61)
DD_t	-0.002	-0.001	-0.003*	0.003	-0.002	0.001	-0.005***
	(-0.69)	(-0.79)	(-1.84)	(1.37)	(-0.60)	(0.89)	(-2.78)
$NegE_t$	-0.029***	0.016***	0.051***	0.100***	-0.044***	-0.034***	-0.043***
	(-6.71)	(5.16)	(10.05)	(11.32)	(-12.79)	(-10.27)	(-12.22)
AC_t	0.026***	-0.023***	-0.066***	-0.228***	0.056***	0.046***	0.112***
	(2.86)	(-3.22)	(-4.93)	(-14.81)	(4.62)	(4.51)	(17.38)
Observations	442,389	442,389	442,389	442,389	442,389	442,389	442,389
Adjusted R-squared	0.126	0.061	0.051	0.099	0.095	0.069	0.027
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel B. Long-term Orientation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+1}	GP_{t+1}	OP_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}
GE_t^g	0.432***	0.126***	-0.018	-0.016	0.306***	0.148***	-0.004
	(3.69)	(4.37)	(-0.73)	(-0.60)	(3.34)	(3.10)	(-0.27)
MU_t^g	-0.050***	-0.003	0.025***	0.045***	-0.050***	-0.028***	-0.016***
	(-3.55)	(-0.94)	(4.62)	(5.60)	(-3.66)	(-5.83)	(-4.86)
GE_t^g × High LTO	-0.001	-0.045	0.083***	0.075***	0.050	-0.137***	0.011***
	(-0.01)	(-1.05)	(3.04)	(4.30)	(0.62)	(-2.90)	(2.65)
MU_t^g × High LTO	**-0.003**	**-0.000**	**-0.014****	**-0.022*****	**-0.002**	**0.015****	**0.007*****
	(-0.45)	**(-0.04)**	**(-2.22)**	**(-2.80)**	**(-0.44)**	**(2.60)**	**(3.81)**
A_t	-0.048***	-0.025***	-0.026***	-0.040***	-0.023***	0.002	0.010***
	(-7.72)	(-10.91)	(-11.49)	(-8.81)	(-3.45)	(0.64)	(6.81)
D_t	0.206**	0.081***	-0.006	-0.044	0.128*	0.078***	0.027
	(2.10)	(2.82)	(-0.16)	(-0.83)	(1.84)	(3.14)	(1.58)
DD_t	-0.003	-0.001	-0.003	0.004	-0.002	0.001	-0.005***
	(-0.76)	(-0.90)	(-1.47)	(1.42)	(-0.60)	(0.66)	(-3.17)
$NegE_t$	-0.029***	0.016***	0.051***	0.100***	-0.044***	-0.034***	-0.043***
	(-6.71)	(5.30)	(9.78)	(11.18)	(-12.53)	(-9.95)	(-12.31)
AC_t	0.026***	-0.023***	-0.066***	-0.228***	0.056***	0.046***	0.112***
	(2.87)	(-3.22)	(-4.78)	(-14.75)	(4.62)	(4.49)	(17.64)
Observations	442,389	442,389	442,389	442,389	442,389	442,389	442,389
Adjusted R-squared	0.126	0.061	0.051	0.099	0.095	0.069	0.027
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Table 6 Panel A (Panel B) presents the results of regressing changes in one-year-ahead revenues (Rev), gross profits (GP), operating profits (OP), earnings (E), cost of goods sold (COGS), operating expenses (OX), and non-operating expenses (NOX) on controls and macroeconomic growth expectations (GE^g) and uncertainty (MU^g) interacted with High EPL (High LTO), an indicator that the firm's host country's employment protection legislation (long-term orientation) score is above the sample median. Variable definitions are in Appendix A. Standard errors are clustered by country and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

To summarize, the results in this section indicate that managers in high-EPL regimes, where labor cost adjustment is more difficult, cut costs less in response to increases in macroeconomic uncertainty. Consequently, net operating expenses fall to a smaller degree, muting the cost-cutting benefits to operating profit and overall profit that would otherwise be observed.

3.2.5 Long-term orientation

The results in Figure 3.3 suggest that managers' cost-cutting reaction to macroeconomic uncertainty is inefficient and destroys shareholder value. One potential explanation for such an overreaction to macroeconomic uncertainty might be managerial myopia. In countries where capital market pressures for short-term results is high, mangers might be pressured to sacrifice long-run performance for short-term performance (Stein 1988, 1989). I explore whether managerial myopia helps to explain the performance patterns documented in Figure 3.3 by examining how my results vary with the cultural environment the firm operates in. While, to the best of my knowledge, there is no data on individual managers' cultural background, country aggregates for citizens' cultural background are readily available. Thus, another benefit of the international setting is that it allows me to examine whether the effects of macroeconomic uncertainty on expenses are weakened for firms in countries in which long-term orientation takes higher cultural priority.

I measure a country's long-term orientation score via Hofstede et al.'s (2010) long-term orientation score (LTO) and adjust my main international annual data test by interacting an indicator that takes a value of one when the firm's home country's LTO score is above the sample median and a value of zero if the firm's home country's LTO

score is below the sample median or missing ($High\ LTO$) with macroeconomic growth expectations and uncertainty.[11,12]

The results are shown in 3.7 Panel B. I document that the negative effect of macroeconomic uncertainty on firms in more long-term oriented countries is cut approximately by half for net operating expenses (0.015, t = 2.60), and net non-operating expenses (0.007, t = 3.81). This indicates that managements' reaction is indeed influenced by its cultural attitude towards long-term orientation. In contrast, the revenue (-0.003, t = -0.45), cost of goods sold (-0.002, t = -0.44), and gross profit (-0.000, t = -0.04) reactions to macroeconomic uncertainty do not vary significantly with long-term orientation. However, the positive operating profit (-0.014, t = -2.22) and earnings (-0.022, t = -2.80) reactions are weakened for firms in long-term oriented countries, reflecting the previous finding that managers in such countries cut costs less aggressively in response to macroeconomic uncertainty.

In total, I find that the initially positive response of profits to macroeconomic uncertainty reverses at least partially in the long-run, suggesting that myopia could play a role in managements' cost-cutting reaction. Using cross-country variation in cultural attitude towards long-term orientation, I document that the cost-cutting and profitability reactions are weakened for firms in long-term oriented countries, which further corroborates the myopia hypothesis.

[11]The results are robust to using OECD's continuous LTO score instead of the indicator as the LTO measure and to excluding countries without LTO data.

[12]While countries in which long-term orientation plays a larger role also tend to have strong employment protection legislation, the correlation coefficient between LTO and EPL is 0.20, which indicates that LTO is distinct from EPL.

3.3 Disaster Shocks

The analysis thus far suggests that the revenue effects of negative demand shocks are offset by managers' cost-cutting. The research design relies on the assumption that macroeconomic variables such as aggregate stock returns and economic policy uncertainty are exogenous to the firm. However, recent work suggests the potential for at least some reverse causality between firm-level and macro-level variables, which raises questions about my exogeneity assumption. For example, Gabaix (2011) shows that idiosyncratic firm-level shocks cause macroeconomic movements in economies in which firm size follows a power-law distribution, as is generally the case in modern economies. Similarly, Bachmann et al. (2011), Tian (2015), and Decker et al. (2016) argue that firms' option to abandon by declaring bankruptcy encourages price experimentation, risk-taking, and reduced diversification in bad times. As the threat of exit looms larger, troubled firms may engage in more risky gambles with unknown outcomes, which increases uncertainty about firm and industry performance. To address these concerns and to enhance internal validity, I follow Baker and Bloom (2013) and use country-level natural disasters, political unrest, revolutions, and terrorist attacks as instruments for aggregate growth expectations and uncertainty.[13]

3.3.1 Research Design

Baker and Bloom (2013) measure disaster shocks as indicators that a natural disaster, political shock, revolution, or terrorist attack occurred within a country-year. As the number of qualifying shocks is large with several events per week across the globe,

[13]Most disaster shocks arise from natural disasters. The frequency and severity of natural disasters have been increasing over time. Specifically, the Swiss Re Institute (2019) documents that real average annual natural disasters losses more than sextupled from 1980 to 2019.

they limit themselves to relatively severe shocks fulfilling one of the following three conditions: (1) More than 0.001% of a country's population is dead, (2) there is more than 0.01% of a country's GDP in damage, or (3) a successful coup or regime change results from the shock.

Other concerns are that the disaster shocks were anticipated or relatively small in magnitude. Baker and Bloom (2013) address these issues by weighting each shock by the percentage increase in Google News Archive citations of the country in which the shock occurred during the 15 days before and after the shock date. For example, if a country is mentioned 10 times during the 15 days preceding the shock and 12 times during the 15 days following the shock, the shock triggers a 12% jump in news citations and is assigned a weight of 0.12 ($= 12/10 - 1$). Multiple shocks within a specific category, i.e., natural disasters, political unrest, revolutions, or terrorist attacks, can occur in a given country-year, so the analysis is restricted to the event with the highest jump in media citations for that category in the country-year.

I follow Baker and Bloom (2013) and employ a 2SLS design, which allows me to distinguish between aggregate growth expectations and uncertainty variation arising from disaster shocks. Thus, the first-stage model for aggregate growth expectations takes the form of:

$$\begin{aligned} GE^{\mathrm{BB}}_{c,t} &= \alpha^1_1 NaturalDisaster_{c,t} + \alpha^1_2 PoliticalShock_{c,t} + \alpha^1_3 Revolution_{c,t} + \\ &\quad \alpha^1_4 TerroristAttack_{c,t} + Controls + \Gamma_i + \Phi_t + u^1_t \end{aligned} \tag{5}$$

The first-stage model for macroeconomic uncertainty is as follows:

$$\begin{aligned} MU^{\mathrm{BB}}_{c,t} &= \alpha^2_1 NaturalDisaster_{c,t} + \alpha^2_2 PoliticalShock_{c,t} + \alpha^2_3 Revolution_{c,t} + \\ &\quad \alpha^2_4 TerroristAttack_{c,t} + Controls + \Gamma_i + \Phi_t + u^2_t \end{aligned} \tag{6}$$

The second-stage model for the dependent variables of interest is as follows:

$$DV_{i,t+1} = \beta_1 \hat{GE}^{\text{BB}}_{c,t} + \beta_2 \hat{MU}^{\text{BB}}_{c,t} + Controls + \Gamma_i + \Phi_t + \epsilon_{i,t+1} \quad (7)$$

where hats symbolize predicted values obtained from the first stage, $GE^{\text{BB}}_{c,t}$ captures country-specific aggregate annual stock returns, $MU^{\text{BB}}_{c,t}$ captures country-specific aggregate annual stock market volatility, $Controls$ captures the vector of control variables as in (3), and Γ_i and Φ_t capture firm and year fixed effects controlling for constant firm characteristics and global macroeconomic shocks.

3.3.2 Data

To estimate the 2SLS, I obtain annual fundamental data from Compustat Global and aggregate stock returns, aggregate stock return volatility, and disaster shock data from Nicholas Bloom's website.[14] The sample period starts in 1988 with the inception of Compustat Global and ends with Baker and Bloom's (2013) sample in 2013. Again, I use Compustat's Exchange Rate Monthly file and translate all nominal amounts into USD to ensure comparability. Baker and Bloom's (2013) coverage is limited to countries with more than $50 billion in nominal GDP in 2008 and at least five years of aggregate daily stock market index data. To align the timing of the Compustat and Baker and Bloom (2013) data, I retain firm-year observations with fiscal years ending in March, June, September, or December.

Table 3.8 Panel A presents the sample composition and country-specific averages for aggregate growth expectations and uncertainty, which are measured as the countries' major stock market's annual index returns and daily return volatility. Again,

[14] I download Baker and Bloom's (2013) data from https://nbloom.people.stanford.edu/. See their Section 3.1 for an extensive discussion about data sources and variable computation.

US firms comprise a large share of the sample (37.35%). Other major contributors include Japan (9.16%), India (7.24%), and China (6.50%). Panel B of Table 3.8 reveals much variation on GE (mean of 0.01 but standard deviation of 0.07). Volatility in developed countries, such as the US and Germany, tends to be lower than in developing countries, such as Egypt or Greece. Panels B and C present descriptive statistics and the correlation matrix, which mirror the findings of Tables 3.1 and 3.5.

Table 7. Baker and Bloom (2013) Data: Sample Composition and Summary Statistics

Panel A. Sample Composition

Country	Firm-Years	% Sample	Mean GE_t^{BB}	Mean MU_t^{BB}
Argentina	574	0.17%	2.01%	1.66%
Australia	14,297	4.28%	-0.06%	0.96%
Austria	691	0.21%	0.27%	1.14%
Bangladesh	74	0.02%	-4.64%	1.05%
Belgium	880	0.26%	-0.15%	1.09%
Brazil	2,633	0.79%	1.67%	1.84%
Canada	15,967	4.78%	0.59%	1.00%
Chile	1,746	0.52%	1.82%	0.73%
China	21,716	6.50%	0.82%	1.72%
Colombia	249	0.07%	2.36%	1.21%
Czech Republic	148	0.04%	-0.13%	1.35%
Denmark	1,036	0.31%	0.91%	1.07%
Ecuador	9	0.00%	0.29%	0.73%
Egypt	363	0.11%	2.51%	1.73%
Finland	1,151	0.34%	-0.31%	1.63%
France	5,379	1.61%	-0.28%	1.32%
Germany	6,283	1.88%	0.03%	1.43%
Greece	1,590	0.48%	-4.39%	1.86%
Hong Kong	934	0.28%	1.47%	1.83%
Hungary	189	0.06%	-0.31%	2.06%
India	24,209	7.24%	1.24%	1.54%
Indonesia	3,220	0.96%	1.86%	1.49%
Ireland	556	0.17%	-0.59%	1.30%
Israel	2,148	0.64%	1.49%	1.26%
Italy	2,033	0.61%	-1.24%	1.33%
Japan	30,600	9.16%	-0.92%	1.45%
Kenya	90	0.03%	-1.86%	0.96%
Korea	6,864	2.05%	1.30%	1.54%
Kuwait	381	0.11%	-0.06%	0.68%
Luxembourg	246	0.07%	-1.06%	1.31%
Malta	71	0.02%	1.57%	1.07%
Mexico	944	0.28%	1.81%	1.37%
Morocco	332	0.10%	1.07%	0.80%
Netherlands	1,505	0.45%	-0.03%	1.35%
New Zealand	891	0.27%	-0.55%	0.68%
Nigeria	460	0.14%	1.82%	1.22%
Norway	1,516	0.45%	1.24%	1.43%
Pakistan	2,350	0.70%	1.30%	1.41%
Peru	891	0.27%	3.32%	1.44%
Philippines	987	0.30%	1.35%	1.34%
Poland	3,055	0.91%	-0.08%	1.51%
Portugal	508	0.15%	-0.66%	1.30%
Romania	248	0.07%	0.17%	1.66%
Russia	1,378	0.41%	0.23%	2.22%
Saudi Arabia	762	0.23%	-0.69%	1.37%
Serbia	9	0.00%	-14.73%	1.30%
Singapore	3,965	1.19%	0.30%	1.14%
South Africa	1,866	0.56%	1.46%	1.45%
Spain	694	0.21%	-2.08%	1.54%
Sweden	3,081	0.92%	0.13%	1.41%
Switzerland	2,386	0.71%	0.65%	1.04%
Taiwan	13,890	4.16%	0.68%	1.30%
Thailand	4,907	1.47%	0.91%	1.46%
Tunisia	188	0.06%	1.64%	0.58%
Turkey	1,215	0.36%	1.93%	1.78%
Ukraine	66	0.02%	-3.25%	1.92%
United Kingdom	13,326	3.99%	-0.15%	1.04%
USA	124,826	37.35%	0.89%	1.03%
Venezuela	78	0.02%	0.83%	1.67%
Vietnam	1,517	0.45%	-3.92%	1.59%
Total	334,168	100.00%	0.54%	1.24%

Panel B. Descriptive Statistics

Variable	N	Mean	StD	P1	P25	Median	P75	P99
GE_t^{BB}	334,168	0.01	0.07	-0.20	-0.03	0.01	0.05	0.19
MU_t^{BB}	334,168	0.01	0.01	0.01	0.01	0.01	0.01	0.03
Rev_t	334,168	0.08	0.31	-1.10	-0.02	0.04	0.17	1.32
X_t	334,168	0.07	0.40	-1.81	-0.02	0.05	0.18	1.60
E_t	334,168	0.01	0.21	-0.84	-0.03	0.00	0.03	1.06
$COGS_t$	334,168	0.06	0.26	-0.97	-0.01	0.02	0.11	1.14
OX_t	334,168	0.02	0.15	-0.77	0.00	0.01	0.04	0.64
NOX_t	334,168	0.00	0.11	-0.55	-0.01	0.00	0.02	0.50
GP_t	334,168	0.02	0.15	-0.60	-0.01	0.01	0.06	0.64
OP_t	334,168	0.01	0.15	-0.59	-0.02	0.01	0.04	0.71
A_t	334,168	4.91	2.33	-0.94	3.40	4.92	6.44	10.31
D_t	334,168	0.00	0.01	-0.06	0.00	0.00	0.00	0.08
DD_t	334,168	0.41	0.49	0.00	0.00	0.00	1.00	1.00
$NegE_t$	334,168	0.32	0.47	0.00	0.00	0.00	1.00	1.00
AC_t	334,168	0.00	0.23	-0.87	-0.06	0.00	0.05	1.06

Panel C. Correlation Matrix

Variable	GE_t^{BB}	MU_t^{BB}	Rev_{t+1}	X_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}	GP_{t+1}	OP_{t+1}	A_t	D_t	DD_t	$NegE_t$	AC_t
GE_t^{BB}	1.00	-0.38*	0.13*	0.11*	-0.02*	0.12*	0.05*	0.03*	0.06*	0.00	-0.03*	0.02*	0.00	-0.05*	0.03*
MU_t^{BB}	-0.30*	1.00	-0.06*	-0.06*	0.03*	-0.06*	-0.04*	-0.03*	-0.03*	0.01*	0.07*	-0.04*	-0.02*	-0.04*	-0.02*
Rev_{t+1}	0.18*	-0.07*	1.00	0.75*	0.07*	0.82*	0.39*	0.12*	0.59*	0.19*	-0.03*	0.03*	0.01*	-0.11*	0.03*
X_{t+1}	0.17*	-0.09*	0.80*	1.00	-0.56*	0.73*	0.57*	0.47*	0.29*	-0.28*	0.01*	0.03*	0.02*	-0.17*	0.17*
E_{t+1}	0.03*	0.02*	0.28*	-0.17*	1.00	-0.11*	-0.39*	-0.62*	0.29*	0.72*	-0.06*	-0.01*	-0.03*	0.16*	-0.22*
$COGS_{t+1}$	0.17*	-0.08*	0.83*	0.79*	0.08*	1.00	0.15*	0.09*	0.08*	-0.07*	-0.01*	0.03*	0.01*	-0.13*	0.05*
OX_{t+1}	0.11*	-0.08*	0.51*	0.60*	-0.11*	0.35*	1.00	0.11*	0.50*	-0.46*	0.02*	0.03*	0.01*	-0.11*	0.06*
NOX_{t+1}	0.06*	-0.04*	0.22*	0.42*	-0.29*	0.15*	0.12*	1.00	0.08*	-0.02*	0.02*	0.01*	0.01*	-0.12*	0.21*
GP_{t+1}	0.12*	-0.05*	0.70*	0.45*	0.46*	0.32*	0.53*	0.24*	1.00	0.47*	-0.04*	0.02*	-0.01*	-0.01*	-0.03*
OP_{t+1}	0.06*	-0.01*	0.41*	0.08*	0.73*	0.16*	-0.10*	0.23*	0.64*	1.00	-0.06*	0.00*	-0.03*	0.11*	-0.09*
A_t	-0.03*	0.08*	-0.02*	-0.05*	-0.03*	-0.01*	-0.05*	0.00	-0.04*	-0.03*	1.00	0.01*	0.37*	-0.34*	-0.03*
D_t	0.04*	-0.08*	0.06*	0.06*	-0.01*	0.06*	0.06*	0.02*	0.04*	0.00	0.12*	1.00	0.22*	-0.06*	0.01*
DD_t	0.00*	-0.01*	0.01*	-0.01*	-0.03*	0.01*	-0.02*	0.00	-0.01*	-0.02*	0.37*	0.40*	1.00	-0.32*	-0.01*
$NegE_t$	-0.04*	-0.05*	-0.15*	-0.19*	0.17*	-0.17*	-0.18*	-0.12*	-0.04*	0.09*	-0.34*	-0.18*	-0.32*	1.00	-0.10*
AC_t	0.04*	-0.02*	0.04*	0.12*	-0.15*	0.06*	0.05*	0.13*	-0.02*	-0.06*	0.00	0.03*	0.01*	-0.15*	1.00

Table 7 presents the international annual Baker and Bloom (2013) sample composition (Panel A), descriptive statistics (Panel B), and correlation matrix (Panel C). * indicates significance at the 1% level. Pearson (Spearman) correlations are above (below) the diagonal. Variable definitions are in Appendix A.

3.3.3 Results

Table 3.9 presents the first- and second-stage results for all variables of interest. Control variables are suppressed to conserve space. I begin by examining the validity of my research design. To yield sensible estimates, the instruments must satisfy the exclusion restriction (i.e., the instruments cannot be related to the error term) and the relevance condition (i.e., the instruments must be related to the instrumented variables). The exclusion restriction is inherently untestable as the structural error term is unobservable. However, the first-stage regression estimates yield evidence regarding instrument relevance. Revolutions and political shocks are significantly negatively related to aggregate growth expectations and significantly positively related to macroeconomic uncertainty. Surprisingly, however, natural disasters are negatively related to macroeconomic uncertainty, although the statistical significance is marginal (-0.001, t = 1.71) and the effect sizes are much smaller than those observed for political shocks (0.013, t = 5.94) and revolutions (0.041, t = 15.54). One potential explanation for this finding is that after natural disasters, increased foreign aid and political pressures offset some of the capital damage and help to create more stable operating environments for business, thereby reducing macroeconomic uncertainty (Fomby et al. 2011). Lastly, terror attacks are not significantly related to macroeconomic growth expectations or uncertainty, perhaps because of their rarity. Only 920 firm-quarters in my sample experience a terrorist attack, which is equivalent to 0.28% (= 920/334,168) of the overall sample.

Table 8. Baker and Bloom (2013) Data: Disaster Shocks as Instruments for Macroeconomic Uncertainty

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+1}	GP_{t+1}	OP_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}
				IV 1st Stage: GE_t^{BB}			
Natural Disaster$_t$	-0.023	-0.023	-0.023	-0.023	-0.023	-0.023	-0.023
	(-1.58)	(-1.58)	(-1.58)	(-1.58)	(-1.58)	(-1.58)	(-1.58)
Political Shock$_t$	-0.250***	-0.250***	-0.250***	-0.250***	-0.250***	-0.250***	-0.250***
	(-10.90)	(-10.90)	(-10.90)	(-10.90)	(-10.90)	(-10.90)	(-10.90)
Revolution$_t$	-0.518***	-0.518***	-0.518***	-0.518***	-0.518***	-0.518***	-0.518***
	(-17.29)	(-17.29)	(-17.29)	(-17.29)	(-17.29)	(-17.29)	(-17.29)
Terrorist Attack$_t$	0.005	0.005	0.005	0.005	0.005	0.005	0.005
	(0.42)	(0.42)	(0.42)	(0.42)	(0.42)	(0.42)	(0.42)
				IV 1st Stage: MU_t^{BB}			
Natural Disaster$_t$	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*
	(-1.71)	(-1.71)	(-1.71)	(-1.71)	(-1.71)	(-1.71)	(-1.71)
Political Shock$_t$	0.013***	0.013***	0.013***	0.013***	0.013***	0.013***	0.013***
	(5.94)	(5.94)	(5.94)	(5.94)	(5.94)	(5.94)	(5.94)
Revolution$_t$	0.041***	0.041***	0.041***	0.041***	0.041***	0.041***	0.041***
	(15.54)	(15.54)	(15.54)	(15.54)	(15.54)	(15.54)	(15.54)
Terrorist Attack$_t$	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
				IV 2nd Stage			
GE_t^{BB}	-0.324	0.309***	0.744**	0.835**	-0.663*	-0.492*	-0.038
	(-0.87)	(2.83)	(2.55)	(2.60)	(-1.72)	(-1.69)	(-0.21)
MU_t^{BB}	**-11.816****	**-0.013**	**6.750**	**15.050*****	**-12.473****	**-7.469**	**-7.485*****
	(-2.03)	**(-0.01)**	**(1.46)**	**(5.45)**	**(-2.05)**	**(-1.62)**	**(-4.08)**
Observations	334,168	334,168	334,168	334,168	334,168	334,168	334,168
Adjusted R-squared	0.140	0.058	-0.002	0.042	0.097	0.042	-0.008
Controls	YES	YES	YES	YES	YES	YES	YES
Fixed Effects	Firm & Year	Firm & Year	Firm & Year	Firm & Year	Firm & Year	Firm & Year	Firm & Year

Table 8 presents the 2SLS first- and second-stage results of regressing changes in one-year-ahead revenues (Rev), gross profits (GP), operating profits (OP), earnings (E), cost of goods sold (COGS), operating expenses (OX), and non-operating expenses (NOX) on controls and macroeconomic growth expectations (GE^{BB}) and uncertainty (MU^{BB}) instrumented by natural disasters, political shocks, revolutions, and terrorist attacks. Variable definitions are in Appendix A. Standard errors are clustered by country and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

With respect to the second stage, I confirm Li et al.'s (2014) finding that aggregate growth expectations positively impact corporate profitability (0.835, t = 2.60). The GE^{BB} slope coefficient is significantly positive for gross profits (0.309, t = 2.83) and operating profits (0.744, t = 2.55) as well, but insignificant for revenues (-0.324, t = -0.87) and net non-operating expenses (-0.038, t = -0.21), and marginally significantly negative for COGS (-0.663, t = -1.72) and net operating expenses (-0.492, t = -1.69). As before, macroeconomic uncertainty relates negatively to revenues (-11.816, t = -2.03), COGS (-12.473, t = -2.05), net operating expenses (-7.469, t = -1.62), and net non-operating expenses (-7.485, t = -4.08). Reductions in expenses offset the reduction in revenues. As a result, the effect of macroeconomic uncertainty turns insignificantly negative for gross profits (-0.013, t = -0.01), insignificantly positive for operating profits (6.750, t = 1.46), and significantly positive for earnings (15.050, t = 5.45).

Overall, using disaster shocks as plausibly exogenous variation in aggregate growth expectations and uncertainty confirms the prior sections' findings that macroeconomic uncertainty lowers firms' revenues and expenses and has a positive net effect on earnings. Managers' cost-cutting more than offsets uncertainty-induced decreases in sales, yielding a positive net effect of macroeconomic uncertainty on profitability.

3.4 Robustness Tests

3.4.1 Denominator Effects

One concern with the previous analysis is that profits could go up in response to macroeconomic uncertainty because of denominator rather than numerator effects. Prior research documents that macroeconomic uncertainty reduces investment, which

in turn reduces average total assets, the deflator in my empirical tests. Hence, even if profits fall, profits scaled by average total assets could rise if the proportional decrease in assets exceeds the proportional decrease in profits.

To address this concern and to demonstrate the robustness of my findings to alternative scalars, I redo the tests in Table 3.4 with alternative deflators including average, beginning-of-the-year, and end-of-the-year total assets and market value of equity. The results are shown in Table 3.10. Using beginning-of-the-year total assets or market value of equity as the scalar mitigates denominator concerns by holding the asset base fixed. For each scalar, my inferences remain unchanged.

Table 9. International Annual Data: Alternative Scalars

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+1}	GP_{t+1}	OP_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}
Beginning Assets (N = 442,389)							
MU_t^g	-0.052***	-0.001	0.017***	0.031***	-0.052***	-0.014**	-0.011***
	(-2.89)	(-0.15)	(3.69)	(4.24)	(-3.31)	(-2.53)	(-3.43)
Ending Assets (N = 442,389)							
MU_t^g	-0.047***	0.000	0.021***	0.039***	-0.051***	-0.021***	-0.013***
	(-3.03)	(0.02)	(3.93)	(4.17)	(-3.55)	(-3.16)	(-3.59)
Average Assets (N = 442,389)							
MU_t^g	-0.051***	-0.003	0.017***	0.032***	-0.052***	-0.019***	-0.012***
	(-3.25)	(-0.69)	(3.58)	(4.04)	(-3.64)	(-3.55)	(-3.62)
Beginning Market Value of Equity (N = 358,415)							
MU_t^g	-0.019	0.004**	0.014**	0.027*	-0.026*	-0.009*	-0.011*
	(-1.43)	(2.01)	(2.02)	(1.94)	(-1.72)	(-1.66)	(-1.81)
Ending Market Value of Equity (N = 376,129)							
MU_t^g	-0.018	0.005**	0.016*	0.034*	-0.027*	-0.012*	-0.014*
	(-1.56)	(2.28)	(1.90)	(1.90)	(-1.75)	(-1.80)	(-1.76)
Average Market Value of Equity (N = 355,443)							
MU_t^g	-0.020	0.002	0.011*	0.024*	-0.025*	-0.009*	-0.010*
	(-1.54)	(1.50)	(1.97)	(1.97)	(-1.75)	(-1.77)	(-1.82)
Controls	YES	YES	YES	YES	YES	YES	YES
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

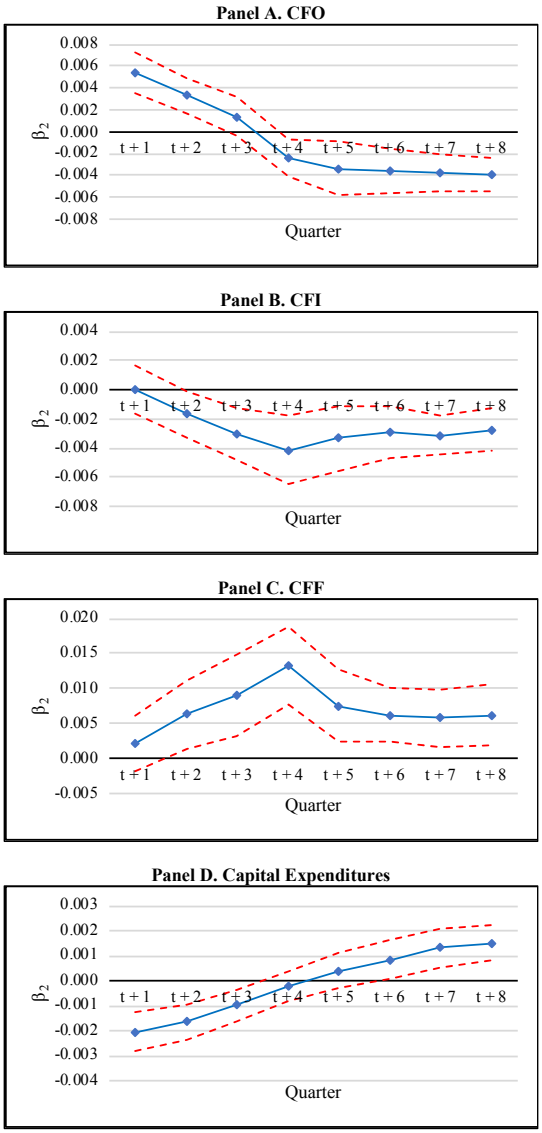
Table 9 presents the results of regressing changes in one-year-ahead revenues (Rev), gross profits (GP), operating profits (OP), earnings (E), cost of goods sold (COGS), operating expenses (OX), and non-operating expenses (NOX) on controls and macroeconomic growth expectations (GE^g) and uncertainty (MU^g). All variables are scaled by beginning-of-the-year assets, end-of-the-year assets, average assets, beginning-of-the-year market value of equity, end-of-the-year market value of equity, or average market value of equity. Variable definitions are in Appendix A. Standard errors are clustered by country and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

3.4.2 Real Outcomes

While the main tests explore the effects of macroeconomic uncertainty on revenues, expenses, and profits these results could be driven by managers managing accrual outcomes without changing their actual investment decisions. To address this concern, I evaluate the effect of macroeconomic uncertainty on real outcomes such as cash flow from operations (CFO), cash flow from investing (CFI), and cash flow from financing (CFF), production, and inventory changes.

For each of these real variables, I redo Figure 3.2's response function plots and present the results in Figure 3.5. Inconsistent with the conjecture that the results in the main paper are driven by accrual earnings management, CFO increases for three quarters after an increase in macroeconomic uncertainty. The initial reaction, however, reverses in quarters 4 to 8. CFI initially does not react to macroeconomic uncertainty but responds negatively in quarters 3 to 8. Similarly, the reaction is CFF to macroeconomic uncertainty is initially insignificant but turns significantly positive in quarters 2 through 8. In total, these findings suggest that managers' reaction to macroeconomic uncertainty affects real cash flows and not only accounting accruals.

Figure 6. Response Functions: Macroeconomic Uncertainty and Real Firm Outcomes



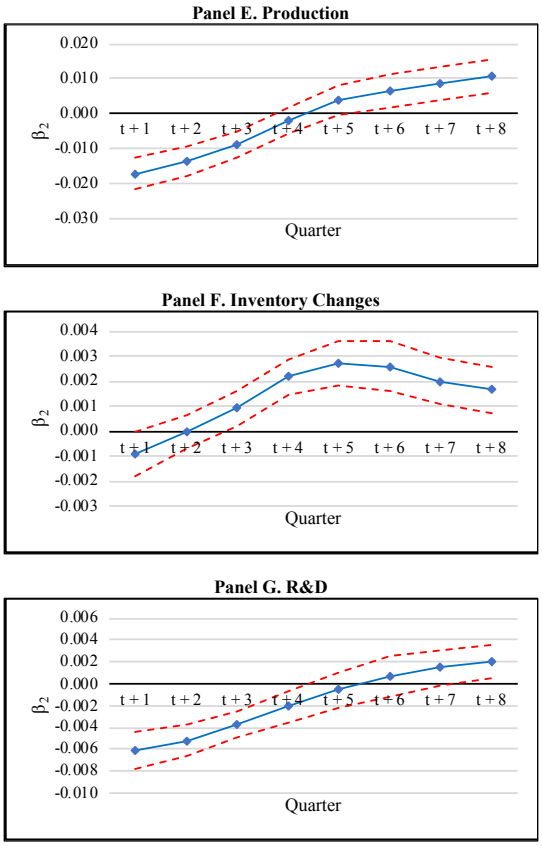


Figure 6 Panel A, B, C, D, E, F, and G plot response functions (Y axis) of CFO, CFI, CFF, capital expenditures, production, inventory changes, and R&D to a unit shock in economic policy uncertainty over 1 to 20 quarters (X axis) in the future. Responses measured as macroeconomic uncertainty's slope coefficient β_2 (blue solid line) and confidence intervals (red dashed line) are obtained from estimating equation (3) with the full set of controls. Variable definitions are in Appendix A. Standard errors are clustered by firm and by quarter.

Next, I evaluate the effect of macroeconomic uncertainty on managements' decisions more directly. Rather than looking at outcome variables of managers' decisions, I evaluate the effect of macroeconomic uncertainty on capital expenditures, production, inventory changes, and R&D (Binz et al. 2017). Figure 3.5 Panels D to G show the results. Capital expenditures and production fall in quarters 1 to 3 and rebound starting in quarter 6. These results are consistent with Bloom (2009). In response to macroeconomic uncertainty, managers reduce investment and production. Once uncertainty resolves, the pent-up demand is released and managers increase investment and production. While inventory is initially unaffected by macroeconomic uncertainty, it increases in quarters 3 to 8, indicating that firms pre-cautiously invest more in inventory stocks to be able to satisfy future demand. Lastly, I revisit Stein and Stone (2013) and examine the effect of macroeconomic uncertainty on R&D. While Stein and Stone (2013) document a positive effect of firm-specific uncertainty on R&D, which is consistent with the presence of sizing options (e.g. Abel 1983), I document an initially negative effect, which is consistent with the presence of the option to delay (e.g. Bloom 2009). Thus, firm-specific and macroeconomic uncertainty appear to affect R&D differently.

3.4.3 Lagged Dependent Variable Model

While Hou et al. (2012) use a lagged dependent variable model, I employ a fixed effect model. In contrast to Hou et al. (2012) whose focus is earnings prediction, my paper aims to better understand managerial decision making and thus seeks to control for factors that potentially confound the relation between firm outcomes and macroeconomic uncertainty. Fixed effects allow me to control for a variety of confounding

constant factors, such as industry or location specific institutional factors. However, this design choice prevents me from incorporating the lagged dependent variable in my regression, as a fixed effects model featuring the lagged dependent variable among the explanatory variables will produce biased and inconsistent estimates, especially when the number of observations per group is small as is the case in firm level panel data (Nickell 1981).

To address endogeneity concerns arising from the omission of the lagged dependent variable, I estimate my main tests in Table 3.11 after including the lagged dependent variable and dropping firm fixed effects. All inferences remain unchanged. In response to macroeconomic uncertainty, revenues and expenses decrease. The negative revenue effect is increasingly offset the more expenses are accounted for and the net effect of macroeconomic uncertainty on bottom line earnings is positive.

Table 10. US Quarterly Lagged Dependent Variable Model Results

Panel A. One quarter Ahead

Variable	(1) Rev_{t+1}	(2) Rev_{t+1}	(3) GP_{t+1}	(4) GP_{t+1}	(5) OP_{t+1}	(6) OP_{t+1}	(7) E_{t+1}	(8) E_{t+1}
GE_t^{US}	0.020	0.021***	0.009**	0.007**	0.003	-0.000	0.011	0.006
	(1.40)	(3.21)	(2.21)	(2.37)	(0.44)	(-0.04)	(0.99)	(0.65)
MU_t^{US}	**-0.022*** **	**-0.008*** **	**-0.005*** **	**-0.002*** **	**0.004*** **	**0.003*** **	**0.005*** **	**0.005*** **
	(-7.17)	**(-6.16)**	**(-5.94)**	**(-3.70)**	**(3.85)**	**(4.32)**	**(3.56)**	**(4.17)**
Dependent $Variable_t$		0.649***		0.482***		0.397***		0.270***
		(86.84)		(33.86)		(49.80)		(30.74)
A_t		-0.000***		-0.001***		-0.001***		-0.001***
		(-5.02)		(-10.37)		(-6.17)		(-3.38)
D_t		-0.008		-0.000		-0.041		-0.151***
		(-0.21)		(-0.01)		(-1.29)		(-2.67)
DD_t		-0.002***		-0.002***		-0.000		-0.001*
		(-6.32)		(-8.61)		(-1.40)		(-1.91)
$NegE_t$		-0.006***		-0.003***		-0.001		-0.002**
		(-16.05)		(-7.64)		(-1.38)		(-2.56)
AC_t		-0.009***		-0.017***		-0.019***		-0.070***
		(-4.94)		(-9.54)		(-6.29)		(-11.00)
Constant	0.041***	0.018***	0.012***	0.011***	-0.002	0.003***	-0.004**	0.001
	(13.01)	(13.33)	(13.93)	(15.25)	(-1.46)	(3.37)	(-2.55)	(0.50)
Observations	526,163	526,163	526,163	526,163	526,163	526,163	526,163	526,163
Adjusted R-squared	0.008	0.438	0.001	0.245	0.000	0.154	0.000	0.058

Panel B. Two quarters Ahead

Variable	(1) Rev_{t+2}	(2) Rev_{t+2}	(3) GP_{t+2}	(4) GP_{t+2}	(5) OP_{t+2}	(6) OP_{t+2}	(7) E_{t+2}	(8) E_{t+2}
GE_t^{US}	0.039***	0.040***	0.013***	0.012***	0.000	-0.001	0.008	0.006
	(3.01)	(3.94)	(3.16)	(3.10)	(0.01)	(-0.30)	(0.78)	(0.61)
MU_t^{US}	**-0.018*** **	**-0.008*** **	**-0.003*** **	**-0.001**	**0.005*** **	**0.004*** **	**0.006*** **	**0.006*** **
	(-6.22)	**(-4.25)**	**(-4.11)**	**(-1.50)**	**(4.45)**	**(4.98)**	**(4.01)**	**(4.31)**
Dependent $Variable_t$		0.456***		0.300***		0.251***		0.208***
		(52.53)		(22.47)		(37.12)		(33.74)
A_t		-0.001***		-0.001***		-0.001***		-0.000**
		(-6.39)		(-10.34)		(-4.57)		(-1.98)
D_t		-0.126**		-0.049		-0.097**		-0.253***
		(-2.07)		(-1.29)		(-2.37)		(-4.32)
DD_t		-0.003***		-0.002***		0.000		-0.000
		(-5.59)		(-7.03)		(0.47)		(-0.58)
$NegE_t$		-0.008***		-0.002***		0.003***		0.003***
		(-17.06)		(-5.02)		(4.61)		(2.91)
AC_t		-0.008***		-0.018***		-0.033***		-0.117***
		(-3.65)		(-7.90)		(-9.42)		(-18.87)
Constant	0.036***	0.024***	0.010***	0.012***	-0.002	0.001	-0.005***	-0.003**
	(11.26)	(11.14)	(10.75)	(12.42)	(-1.52)	(0.89)	(-2.75)	(-2.01)
Observations	504,790	504,790	500,852	500,852	499,922	499,922	505,455	505,455
Adjusted R-squared	0.007	0.227	0.001	0.097	0.001	0.059	0.000	0.031

Panel C. Three quarters Ahead

Variable	(1) Rev_{t+3}	(2) Rev_{t+3}	(3) GP_{t+3}	(4) GP_{t+3}	(5) OP_{t+3}	(6) OP_{t+3}	(7) E_{t+3}	(8) E_{t+3}
GE_t^{US}	0.055***	0.055***	0.015***	0.015***	-0.007	-0.007	-0.005	-0.006
	(4.60)	(4.78)	(3.28)	(3.34)	(-1.30)	(-1.51)	(-0.57)	(-0.75)
MU_t^{US}	**-0.014*** **	**-0.006*** **	**-0.001* **	**-0.000 **	**0.005*** **	**0.004*** **	**0.008*** **	**0.007*** **
	(-5.26)	**(-3.10)**	**(-1.74)**	**(-0.07)**	**(4.15)**	**(4.51)**	**(4.01)**	**(4.11)**
Dependent $Variable_t$		0.275***		0.129***		0.124***		0.148***
		(29.86)		(11.00)		(19.51)		(24.12)
A_t		-0.001***		-0.001***		-0.000***		0.000
		(-7.56)		(-10.25)		(-2.77)		(0.02)
D_t		-0.115		-0.068		-0.102*		-0.233***
		(-1.35)		(-1.26)		(-1.82)		(-3.24)
DD_t		-0.003***		-0.002***		0.000		0.000
		(-5.32)		(-5.98)		(1.53)		(0.04)
$NegE_t$		-0.010***		-0.001*		0.008***		0.009***
		(-16.24)		(-1.71)		(9.42)		(7.79)
AC_t		-0.006**		-0.018***		-0.041***		-0.151***
		(-2.22)		(-7.01)		(-11.50)		(-24.22)
Constant	0.029***	0.027***	0.008***	0.012***	-0.001	-0.002	-0.006***	-0.009***
	(9.50)	(10.68)	(8.04)	(11.11)	(-1.15)	(-1.16)	(-3.08)	(-4.25)
Observations	487,829	487,829	484,699	484,699	483,708	483,708	488,417	488,417
Adjusted R-squared	0.006	0.091	0.000	0.019	0.001	0.017	0.001	0.023

Panel D. Four quarters Ahead

Variable	(1) Rev_{t+4}	(2) Rev_{t+4}	(3) GP_{t+4}	(4) GP_{t+4}	(5) OP_{t+4}	(6) OP_{t+4}	(7) E_{t+4}	(8) E_{t+4}
GE_t^{US}	0.055***	0.055***	0.009*	0.011**	-0.012**	-0.009*	-0.020*	-0.013
	(4.33)	(4.41)	(1.90)	(2.40)	(-2.14)	(-1.76)	(-1.91)	(-1.39)
MU_t^{US}	**-0.007*** **	**-0.005** **	**0.000**	**-0.000**	**0.004*** **	**0.004*** **	**0.007*** **	**0.006*** **
	(-2.80)	**(-2.03)**	**(0.16)**	**(-0.34)**	**(2.89)**	**(3.14)**	**(3.13)**	**(3.00)**
Dependent $Variable_t$		0.042***		-0.171***		-0.182***		-0.261***
		(4.08)		(-21.17)		(-22.65)		(-33.78)
A_t		-0.001***		-0.001***		-0.000		0.001***
		(-7.90)		(-10.16)		(-1.52)		(3.45)
D_t		0.077		0.085*		0.014		-0.107**
		(0.90)		(1.90)		(0.33)		(-2.02)
DD_t		-0.004***		-0.002***		0.002***		0.003***
		(-5.40)		(-5.01)		(4.37)		(5.60)
$NegE_t$		-0.008***		0.002***		0.015***		0.026***
		(-11.69)		(4.24)		(14.56)		(18.88)
AC_t		-0.007***		-0.011***		-0.018***		-0.036***
		(-2.99)		(-3.92)		(-4.91)		(-5.73)
Constant	0.021***	0.031***	0.006***	0.014***	-0.001	-0.005***	-0.005**	-0.018***
	(6.47)	(9.57)	(5.10)	(10.67)	(-0.35)	(-2.88)	(-1.99)	(-8.74)
Observations	472,138	472,138	470,107	470,107	469,280	469,280	472,591	472,591
Adjusted R-squared	0.004	0.009	0.000	0.035	0.001	0.051	0.001	0.095

Table 10 Panels A, B, C, and D present the results of regressing seasonally adjusted 1, 2, 3, and 4 quarter ahead revenues (Rev), gross profits (GP), operating profits (OP), earnings (E), cost of goods sold (COGS), operating expenses (OX), and non-operating expenses (NOX) on controls macroeconomic growth expectations (GE^{US}) and uncertainty (MU^{US}). Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

3.4.4 Alternative Employment Protection Legislation Measures

I measure EPL via the Organization for Economic Co-operation's (OECD) protection of permanent workers against individual dis- missal score, which is part of the Indicators of Employment Protection dataset. However, the Indicators of Employment Protection dataset includes two alternative EPL measures: Protection of permanent workers against individual and collective dismissals, and regulation on temporary forms of employment. I also estimate my tests using these alternative EPL measures and report the results in Table 3.12. All inferences remain unchanged.

Table 11. Alternative Employment Protection Legislation Measures

Panel A. Protection of Permanent Workers Against Individual and Collective Dismissals

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+1}	GP_{t+1}	OP_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}
GE_t^g	0.536***	0.229***	-0.104***	-0.084**	0.298***	0.343***	-0.018
	(6.19)	(4.42)	(-2.72)	(-2.37)	(2.85)	(4.79)	(-0.97)
MU_t^g	-0.062***	-0.013	0.044***	0.076***	-0.049***	-0.060***	-0.028***
	(-3.06)	(-1.29)	(4.40)	(5.05)	(-3.88)	(-5.38)	(-5.69)
$GE_t^g \times EPL$	-0.075	-0.071	0.068***	0.054**	0.004	-0.145***	0.013***
	(-1.15)	(-1.59)	(2.88)	(2.42)	(0.06)	(-3.27)	(4.03)
$MU_t^g \times EPL$	**0.006**	**0.006**	**-0.013****	**-0.022****	**-0.002**	**0.021*****	**0.008*****
	(0.44)	**(0.88)**	**(-2.45)**	**(-2.55)**	**(-0.23)**	**(3.28)**	**(3.69)**
A_t	-0.046***	-0.024***	-0.026***	-0.039***	-0.020***	0.002	0.010***
	(-6.19)	(-9.07)	(-7.89)	(-7.04)	(-2.90)	(0.48)	(6.19)
D_t	0.182	0.071**	-0.028	-0.070	0.115	0.086***	0.028
	(1.66)	(2.27)	(-0.71)	(-1.29)	(1.47)	(2.87)	(1.48)
DD_t	0.001	-0.000	-0.002	0.004	0.000	0.002	-0.005**
	(0.29)	(-0.08)	(-1.13)	(1.24)	(0.03)	(1.19)	(-2.25)
$NegE_t$	-0.029***	0.016***	0.052***	0.102***	-0.045***	-0.035***	-0.044***
	(-5.57)	(4.67)	(8.73)	(10.20)	(-9.00)	(-9.50)	(-11.34)
AC_t	0.019**	-0.025***	-0.069***	-0.235***	0.052***	0.048***	0.113***
	(2.48)	(-3.13)	(-4.54)	(-14.34)	(4.26)	(4.17)	(15.86)
Observations	377,822	377,822	377,822	377,822	377,822	377,822	377,822
Adjusted R-squared	0.129	0.060	0.052	0.101	0.096	0.071	0.030
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel B. Regulation on Temporary Forms of Employment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+1}	GP_{t+1}	OP_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}
GE_t^g	0.434***	0.144***	-0.016	-0.017	0.292***	0.163***	-0.001
	(5.06)	(6.16)	(-0.48)	(-0.49)	(4.52)	(3.17)	(-0.05)
MU_t^g	-0.057***	-0.006	0.031***	0.052***	-0.054***	-0.037***	-0.018***
	(-5.23)	(-1.50)	(5.49)	(5.94)	(-5.70)	(-6.94)	(-5.51)
$GE_t^g \times$ EPL	-0.046***	-0.024***	-0.026***	-0.040***	-0.020***	0.002	0.010***
	(-6.68)	(-9.27)	(-10.42)	(-7.90)	(-2.90)	(0.53)	(6.31)
$MU_t^g \times$ EPL	**0.183**	**0.072****	**-0.030**	**-0.072**	**0.115**	**0.089*****	**0.029**
	(1.67)	**(2.27)**	**(-0.76)**	**(-1.36)**	**(1.47)**	**(3.07)**	**(1.54)**
A_t	0.001	-0.000	-0.002	0.004	0.000	0.002	-0.005**
	(0.23)	(-0.18)	(-1.23)	(1.57)	(0.05)	(0.92)	(-2.62)
D_t	-0.029***	0.016***	0.052***	0.102***	-0.045***	-0.035***	-0.044***
	(-6.52)	(4.71)	(9.01)	(10.21)	(-12.08)	(-9.45)	(-11.39)
DD_t	0.019***	-0.025***	-0.069***	-0.235***	0.052***	0.048***	0.113***
	(2.83)	(-3.14)	(-4.57)	(-14.33)	(4.28)	(4.16)	(16.45)
$NegE_t$	-0.031	-0.040	0.033**	0.028**	0.011	-0.076**	0.005
	(-0.62)	(-1.50)	(2.49)	(2.20)	(0.24)	(-2.51)	(1.13)
AC_t	0.004	0.003	-0.009***	-0.013***	0.000	0.013***	0.004***
	(0.57)	(0.86)	(-4.04)	(-4.40)	(0.08)	(3.55)	(3.09)
Observations	377,643	377,643	377,643	377,643	377,643	377,643	377,643
Adjusted R-squared	0.129	0.060	0.052	0.101	0.096	0.071	0.030
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Table 11 presents the results of regressing changes in one year ahead revenues (Rev), gross profits (GP), operating profits (OP), earnings (E), cost of goods sold (COGS), operating expenses (OX), and non-operating expenses (NOX) on controls and macroeconomic growth expectations (GE^g) and uncertainty (MU^g) interacted with the firm's host country's employment protection legislation (EPL) score measured as the Protection of Permanent Workers Against Individual and Collective Dismissals score (Panel A) and the Regulation on Temporary Forms of Employment score (Panel B). Variable definitions are in Appendix A. Standard errors are clustered by country and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

3.4.5 Within US Cross-Sectional Variation

This section tests whether the effects of macroeconomic uncertainty on revenues, expenses, and profits vary cross-sectionally as predicted by theory. Specifically, I test whether adverse demand shocks are pronounced for durable and investment goods producers and mitigated for insurance companies, whether volume-focused firms cut costs more, whether firms facing high adjustment costs are not able to cut cost as much, and how the net effect on bottom-line earnings varies for firms in financial distress.

Durable Goods Producers

Lifetime portfolio selection models predict that macroeconomic uncertainty causes consumers to delay purchases with high nominal amounts, such as house or car purchases (Romer 1990, Eberly 1994). Given that these transactions comprise a large percentage of the consumers' overall wealth, she prefers to wait until uncertainties about her future employment and financial situation clear before purchasing to avert a premature decision that is costly to reverse. In turn, firms producing goods selling for high nominal amounts are more affected by adverse macroeconomic uncertainty demand shocks and, accordingly, their sales fall more.

To test this conjecture, I examine whether the negative revenue response to macroeconomic uncertainty is more pronounced for investment and durable goods producers. I use Gomes et al.'s (2009) industry classification to create an indicator (*Durable*) for durable and investment goods producers and interact this indicator with aggregate growth expectations and uncertainty. The results are shown in Table 3.13 column 1. Consistent with the arguments made above, the interactive effect between

Durable and macroeconomic uncertainty is significantly negative (-0.009, t = -4.08). Comparing the interaction term's slope coefficient to macroeconomic uncertainty's main effect (-0.017, t = 7.76) shows that the negative effect of macroeconomic uncertainty is approximately 53% (= 0.009/0.017) stronger for durable and investment good producers. Macroeconomic uncertainty shock equal to MU^{US}'s interquartile range decreases revenues by 1.4% (= 0.026 × 0.55) of total assets for such firms.

Table 12. US Quarterly Data: Cross-Sectional Variation

Variable	(1) Rev_{t+1}	(2) Rev_{t+1}	(3) $COGS_{t+1}$	(4) OX_{t+1}	(5) E_{t+1}
GE_t^{US}	0.021*	0.025**	-0.005	0.011	0.010
	(1.86)	(1.99)	(-0.63)	(1.52)	(1.02)
MU_t^{US}	-0.017***	-0.019***	-0.002	-0.012***	0.004***
	(-7.76)	(-7.83)	(-1.50)	(-8.51)	(2.75)
GE_t^{US} × Durable	0.018*				
	(1.80)				
MU_t^{US} × Durable	**-0.009*** **				
	(-4.08)				
GE_t^{US} × Insurance		-0.027*			
		(-1.77)			
MU_t^{US} × Insurance		**0.022*** **			
		(5.55)			
GE_t^{US} × ATO			0.065*		
			(1.87)		
MU_t^{US} × ATO			**-0.056*** **		
			(-7.01)		
GE_t^{US} × OpsLev				-0.013	
				(-1.44)	
MU_t^{US} × OpsLev				**0.012*** **	
				(5.88)	
GE_t^{US} × Distress					0.162***
					(2.90)
MU_t^{US} × Distress					**-0.045*** **
					(-3.74)
Observations	526,163	526,163	526,163	507,173	490,401
Adjusted R-squared	0.161	0.161	0.164	0.080	0.044
Controls	YES	YES	YES	YES	YES
Fixed Effects	Firm	Firm	Firm	Firm	Firm

Table 12 presents the results of regressing changes in one year ahead revenues (Rev), earnings (E), cost of goods sold (COGS), operating expenses (OX), and non-operating expenses (NOX) on controls and macroeconomic growth expectations (GE^g) and uncertainty (MU^g) interacted with an indicator that the firm operates in the durable goods industry (Durable), an indicator that the firm operates in the insurance industry (Insurance), asset turnover (ATO), operating leverage (OpsLev), and Altman's (1968) Z-score (Distress). Variable definitions are in Appendix A. Standard errors are clustered by country and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

Insurance Companies

In periods of high uncertainty, risk-averse individuals purchase insurance to ensure a smooth future consumption path (Arrow 1970). In consequence, insurance companies' revenues should be less negatively affected by macroeconomic uncertainty. I test this conjecture by creating an indicator ($Insurance$) for insurance companies and interact it with macroeconomic uncertainty. I identify insurance firms using Fama and French's (1997) 48 industry classification. Table 3.13 column 2 presents the results. The interactive effect of $Insurance$ and growth expectations is negative. In bad times, people buy more insurance. Further, consistent with adverse macroeconomic uncertainty demand shocks affecting insurance companies' revenue less, the slope coefficient of the $Insurance$ interaction with macroeconomic uncertainty is significantly positive (0.022, t = 5.55).

Volume Focus

Riggs-Cragun's (2018) Lemma 3 predicts that volume-focused firms emphasize revenue-neutral cost-cutting over revenue growth more than price-focused firms to achieve earnings targets. That is, rather than trying to increase revenues, managers of such firms will try to cut certainty types of costs that do not adversely affect revenues, for example via improving operational efficiency or renegotiating supplier contracts. In consequence, managers' cost-cutting reaction to macroeconomic uncertainty should be pronounced for volume-focused firms that target operational efficiency. Further, the reaction should be most visible in COGS, which displays improvements in operational efficiency most directly.

I test this conjecture via examining the interactive effect of macroeconomic uncer-

tainty and operational efficiency, measured as asset turnover (ATO), on COGS. Table 3.13 column 3 presents the results. Operationally efficient firms benefit more during goods times, as evidenced by the significantly positive interaction term between aggregate growth expectation and asset turnover (0.065, t = 1.87). Moreover, asset turnover interacts significantly negatively with macroeconomic uncertainty (-0.056, t = -7.01). Consistent with Riggs-Cragun (2018), managers of operationally efficient firms counteract adverse macroeconomic uncertainty demand shocks by cutting COGS more strongly than other firms.

Operating Leverage

Firms with high operating leverage, i.e. firms with large amounts of fixed capital that is costly to retire, such as specialized machines or large buildings, face high adjustment costs (Anderson et al. 2003). Consequently, the direct cost of abandoning fixed capital for such firms often exceeds the resulting ongoing cost savings of freeing up space and lowering operational cost by removing the machine. Hence, managers facing high operating leverage are constrained in their ability to decrease net operating expenses via divesting. Table 3.13 columns 4 documents the interactive effect of macroeconomic uncertainty and operating leverage on net operating expenses. The interaction term slope coefficient is significantly positive (0.012, t = 5.88). Managers of high operating leverage firms are constrained in their ability to counteract negative macroeconomic uncertainty demand shocks via divesting.

Financial Distress

Tian (2015) argues that the implicit option to abandon provided by limited liability incentivizes financially distressed firms to make risky, potentially unprofitable investments. If things turn out well, managers and shareholders benefit from unlimited upside, but if they do not, downside is limited and the costs of poorly performing investments are mainly carried by debt holders (Jensen and Meckling 1976).

As common in the literature, I measure financial distress as Altman's (1968) Z-score (*Distress*). Table 3.13 column 5 interacts Distress with aggregate growth expectations and uncertainty. *Distress*'s interaction with growth expectations is positive (0.162, t = 2.90). Financially distressed firms have higher subsequent earnings in good times. More importantly, the interaction with macroeconomic uncertainty is negative (-0.45, t = -3.74), indicating that risky bets taken by financially distressed firms in uncertainty times, on average, do not pay off.

In total, I test whether the effect of macroeconomic uncertainty varies in the cross-section as predicted by theory. I find that consumers reduce their purchases of investment and durable good, but not their purchases of insurance products. Moreover, efficiently organized firms are able to cut their variable COGS more drastically in response to macroeconomic uncertainty, while high operating leverage firms facing high adjustment costs are unable to cut their fixed operating cost. Lastly, financially distressed firms are incentivized to take risky, losing gambles when uncertainty is high.

3.4.6 Depreciation and SG&A

I measure operating expenses as the difference between gross and operating profit. However, from these regressions it remains unclear which operating expenses are affected by macroeconomic uncertainty. To address this question, I collect Compustat Quarterly data for depreciation and Sales, General, and Administrative (SG&A) expenses and repeat my main tests for both of them. I choose depreciation and SG&A as they typically are the two main types of operating expenses appearing on firms' income statements and as they are well populated in Compustat, omitting the loss of a large proportion of my sample. The results are shown in Table Table 3.14 Panel A. As in the main tests, I measure depreciation and SG&A as the change from the same quarter in the previous fiscal year scaled by average total assets and winsorized at the 1st and 99th percentiles. Macroeconomic uncertainty has a negative effect on both types of operating expenses at least for four quarters ahead.

Table 13. US Quarterly Data: Macroeconomic Uncertainty, Depreciation, SG&A, Pre-Tax Income, and Net Income

Panel A. SG&A and Depreciation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variable	SGA_{t+1}	SGA_{t+2}	SGA_{t+3}	SGA_{t+4}	DP_{t+1}	DP_{t+2}	DP_{t+3}	DP_{t+4}
GE_t^g	0.008	0.014***	0.022***	0.021***	0.000	0.001	0.001	0.001
	(1.52)	(3.30)	(6.06)	(5.25)	(0.24)	(0.61)	(1.02)	(1.62)
MU_t^g	**-0.010*** **	**-0.007*** **	**-0.005*** **	**-0.002* **	**-0.001*** **	**-0.001*** **	**-0.001*** **	**-0.001*** **
	(-9.30)	**(-7.83)**	**(-5.89)**	**(-1.68)**	**(-6.19)**	**(-5.91)**	**(-5.56)**	**(-4.68)**
A_t	-0.003***	-0.005***	-0.007***	-0.008***	0.000	-0.000***	-0.001***	-0.001***
	(-9.33)	(-13.58)	(-17.10)	(-19.75)	(0.23)	(-6.03)	(-13.01)	(-18.72)
D_t	0.077**	0.034	-0.000	-0.032	0.007	0.006	0.005	0.002
	(2.21)	(0.99)	(-0.01)	(-0.90)	(1.47)	(1.39)	(0.98)	(0.37)
DD_t	0.001**	0.001*	0.001***	0.001**	0.000***	0.000***	0.000***	0.000***
	(2.06)	(1.96)	(2.97)	(2.38)	(2.97)	(3.54)	(4.12)	(4.86)
$NegE_t$	-0.005***	-0.007***	-0.008***	-0.010***	-0.000***	-0.001***	-0.001***	-0.002***
	(-14.50)	(-17.90)	(-18.42)	(-21.79)	(-7.97)	(-14.58)	(-17.55)	(-19.93)
AC_t	-0.027***	-0.003	0.018***	0.037***	-0.003***	-0.001***	-0.001***	-0.000
	(-8.63)	(-0.91)	(5.97)	(12.70)	(-9.35)	(-5.22)	(-3.36)	(-0.12)
Observations	406,755	389,544	377,099	365,711	463,291	442,780	428,487	415,324
Adjusted R-squared	0.119	0.123	0.126	0.136	0.124	0.129	0.128	0.147
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel A. Net Income and Pre-Tax Income

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variable	NI_{t+1}	NI_{t+2}	NI_{t+3}	NI_{t+4}	PI_{t+1}	PI_{t+2}	PI_{t+3}	PI_{t+4}
GE_t^g	0.009	0.009	-0.007	-0.015*	0.013	0.012	-0.000	-0.013*
	(0.88)	(0.87)	(-0.77)	(-1.81)	(1.24)	(1.23)	(-0.01)	(-1.68)
MU_t^g	**0.008*** **	**0.009*** **	**0.008*** **	**0.005*** **	**0.008*** **	**0.008*** **	**0.008*** **	**0.005*** **
	(5.36)	**(6.23)**	**(4.82)**	**(2.74)**	**(5.71)**	**(6.05)**	**(5.14)**	**(2.90)**
A_t	-0.005***	-0.003***	-0.001*	0.001	-0.005***	-0.004***	-0.002***	0.000
	(-6.95)	(-4.60)	(-1.80)	(1.41)	(-7.83)	(-5.49)	(-2.72)	(0.36)
D_t	-0.225***	-0.311***	-0.291***	-0.057	-0.168**	-0.246***	-0.225***	-0.023
	(-3.09)	(-4.47)	(-3.62)	(-0.85)	(-2.25)	(-3.50)	(-2.82)	(-0.35)
DD_t	-0.005***	-0.005***	-0.005***	-0.001	-0.005***	-0.004***	-0.005***	-0.001
	(-10.25)	(-8.39)	(-7.86)	(-1.34)	(-9.96)	(-7.85)	(-8.05)	(-1.19)
$NegE_t$	-0.013***	-0.003***	0.007***	0.051***	-0.014***	-0.003***	0.008***	0.054***
	(-15.76)	(-4.43)	(7.27)	(38.34)	(-17.62)	(-4.31)	(8.67)	(39.57)
AC_t	0.036***	-0.040***	-0.100***	-0.185***	0.039***	-0.036***	-0.097***	-0.178***
	(5.00)	(-6.21)	(-15.61)	(-25.10)	(5.58)	(-5.66)	(-16.09)	(-25.62)
Observations	526,155	505,321	488,265	472,485	526,103	504,493	487,838	472,129
Adjusted R-squared	0.028	0.028	0.036	0.082	0.030	0.029	0.038	0.091
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Table 13 Panel A [Panel B] presents the results of regressing seasonally adjusted 1, 2, 3, and 4 quarter ahead sales, general and administrative expense (SG&A) and depreciation (DP) [net income (NI) and pre-tax income (PI)] on controls macroeconomic growth expectations (GE^{US}) and uncertainty (MU^{US}). Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

3.4.7 Effects of Taxes and Special Items

Consideration of government policy and special items might alter the results. For example, if the government offers tax break during bad or uncertain times, my earnings results might be affected by these breaks via lowering income tax expense, strengthening the bottom line response. Similarly, inferences might be affected by special items such as one-time write downs, which might become increasingly frequent in bad or uncertain times as managers turn pessimistic about future prospects (Hansen and Sargent 2010).

To examine these possibilities, I estimate my main US quarterly tests for seasonally adjusted pre-tax income (= income before extraordinary items + tax expense) and net income (= income before extraordinary items − special items) instead of income before extraordinary items. The results are shown in Table 3.14 Panel B. Macroeconomic uncertainty's slope coefficients are similar to those in the earnings regression in the main tests. Hence, the results are robust after taking taxes and special items into consideration.

3.4.8 IFRS

IFRS mandates firms to carry many assets, such as inventory and PPE, at a value more closely linked to fair value measurement relative to domestic accounting standards, such as US GAAP (Weygandt et al. 2009). Write-downs, write-ups, and impairments are triggered more frequently. In consequence, firms are less likely to realize gains or losses on asset sales, making asset sales a less useful tool to counteract the negative revenue effects of macroeconomic uncertainty. Thus, the net non-operating expense response, in which asset sale gains and losses concentrate, of firms reporting

according to IFRS should be weakened (less negative).

To test this conjecture, I re-estimate the international sample results in Table 3.6 Panel C and interact the main effects of macroeconomic growth expectations and uncertainty with an indicator that the firm reports according to IFRS. Table 3.15 presents the results. While the slope coefficient of the macroeconomic uncertainty - IFRS interaction term is positive, it is not significant. Hence, I fail to find evidence that IFRS firms are restricted in their ability to realize gains from asset sales to counteract the negative effect of macroeconomic uncertainty on revenues.

Table 14. International Annual Data: IFRS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+1}	GP_{t+1}	OP_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}
GE_t^g	0.465***	0.111***	0.017	0.015	0.357***	0.094*	0.001
	(4.57)	(3.04)	(0.47)	(0.35)	(4.46)	(1.77)	(0.04)
MU_t^g	-0.057***	-0.007	0.015***	0.030***	-0.053***	-0.022***	-0.012***
	(-3.22)	(-1.62)	(2.82)	(3.45)	(-3.48)	(-4.17)	(-3.46)
$GE_t^g \times$ IFRS	-0.153	-0.039	0.051	0.055	-0.110	-0.097*	0.008
	(-1.23)	(-0.85)	(1.27)	(1.23)	(-1.13)	(-1.86)	(0.87)
$MU_t^g \times$ IFRS	**0.011**	**0.006***	**0.002**	**0.003**	**0.002**	**0.005**	**0.001**
	(1.44)	**(1.83)**	**(0.71)**	**(0.61)**	**(0.35)**	**(1.06)**	**(0.43)**
A_t	-0.049***	-0.025***	-0.026***	-0.040***	-0.023***	0.002	0.010***
	(-7.91)	(-11.15)	(-11.22)	(-8.64)	(-3.60)	(0.52)	(6.83)
D_t	0.210**	0.082***	-0.007	-0.046	0.130*	0.080***	0.028
	(2.11)	(2.86)	(-0.18)	(-0.86)	(1.85)	(3.32)	(1.63)
DD_t	-0.003	-0.002	-0.003	0.004	-0.002	0.001	-0.005***
	(-0.89)	(-1.13)	(-1.63)	(1.46)	(-0.70)	(0.49)	(-3.59)
$NegE_t$	-0.029***	0.016***	0.051***	0.100***	-0.044***	-0.034***	-0.043***
	(-6.68)	(5.26)	(9.98)	(11.29)	(-12.64)	(-10.24)	(-12.40)
AC_t	0.026***	-0.023***	-0.066***	-0.228***	0.056***	0.046***	0.112***
	(2.85)	(-3.22)	(-4.90)	(-14.74)	(4.59)	(4.51)	(17.81)
Observations	442,293	442,293	442,293	442,293	442,293	442,293	442,293
Adjusted R-squared	0.126	0.061	0.051	0.099	0.095	0.069	0.027
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Table 14 presents the results of regressing changes in one year ahead revenues (Rev), gross profits (GP), operating profits (OP), earnings (E), cost of goods sold (COGS), operating expenses (OX), and non-operating expenses (NOX) on controls and macroeconomic growth expectations (GE^g) and uncertainty (MU^g) interacted with an indicator that the firm reports according to IFRS (IFRS). Variable definitions are in Appendix A. Standard errors are clustered by country and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

3.4.9 Disaster Shocks: Alternative Macroeconomic Growth Expectations and Uncertainty Measures

Table 3.16 tests the robustness of the disaster shock results to alternative measures for aggregate growth expectations and uncertainty proposed in Baker and Bloom (2013) including levels and log volatility of cross-firm stock returns, bond yields, exchange rates, and GDP forecasts. Across measures, macroeconomic uncertainty is generally positively related to subsequent firm profitability. In sum, my finding that macroeconomic uncertainty leads to increased subsequent firm profitability is robust to changes in model specifications and changes in variable measurement.

Table 15. Baker and Bloom (2013) Data: Alternative Macroeconomic Growth Expectations and Uncertainty Measures

Variable	(1) E_{t+1}	(2) E_{t+1}	(3) E_{t+1}	(4) E_{t+1}	(5) E_{t+1}
Level of aggregate stock returns	0.417**				
	(2.60)				
Log volatility of aggregate stock returns	7.525***				
	(5.45)				
Level of cross-firm stock returns		0.446			
		(1.55)			
Log volatility of cross-firm stock returns		0.172***			
		(3.19)			
Level of bond yields			0.026		
			(0.51)		
Log volatility of bond yields			0.057		
			(1.67)		
Level of currency returns				-0.266	
				(-0.61)	
Log volatility of currency returns				0.040	
				(1.19)	
Level of GDP forecasts					0.003
					(1.26)
Log disagreement of GDP forecasts					0.055***
					(4.21)
Observations	329,619	301,058	254,965	295,636	291,396
Adjusted R-squared	0.033	0.021	0.011	0.066	0.071
Controls	YES	YES	YES	YES	YES
Fixed Effects	Firm & Year	Firm & Year	Firm & Year	Firm & Year	Firm & Year

Table 15 presents the 2SLS second stage results of changes in one year ahead earnings (E), cost of goods sold (COGS) controls and various macroeconomic growth expectation and uncertainty measures instrumented by natural disasters, political shocks, revolutions, and terrorist attacks. Variable definitions are in Appendix A. Standard errors are clustered by country and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

3.4.10 Baker et al.'s (2019) Alternative Macroeconomic Uncertainty Measure

It is unclear how much Baker et al.'s (2016) focus of economic policy uncertainty rather than macroeconomic uncertainty in general in EPUI's constriction affects the results. While Table 3.16 already validates the robustness of my findings to traditional macroeconomic uncertainty measures, such as aggregate stock market volatility or forecaster dispersion, this section examines robustness to using Baker et al.'s (2019) Equity Market Volatility (EMV) measure. Similar to EPUI, EMV is constructed from the relative frequency of newspaper articles discussing macroeconomic uncertainty, but different from EPUI, rather than focusing on economic policy uncertainty, EMV focusses on equity market volatility. The results are shown in Table 3.17 and mirror the findings of Table 3.2 in the main paper. Thus, the focus on economic policy uncertainty rather than economic uncertainty more generally does not appear to drive the results.

Table 16. US Quarterly Data: EMV and Corporate Outcomes

Panel A. One Quarter Ahead

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	Rev_{t+1}	Rev_{t+1}	X_{t+1}	X_{t+1}	E_{t+1}	E_{t+1}
GE_t^{US}	0.021	0.014	0.010	0.004	0.012	0.010
	(1.19)	(0.90)	(0.41)	(0.18)	(1.19)	(0.96)
EMV_t^{US}	**-0.075*** **	**-0.074*** **	**-0.091*** **	**-0.092*** **	**0.012**	**0.014**
	(-3.51)	**(-4.25)**	**(-3.39)**	**(-3.77)**	**(1.21)**	**(1.37)**
A_t		-0.016***		-0.014***		-0.004***
		(-24.03)		(-15.38)		(-6.71)
D_t		0.149**		0.337***		-0.181***
		(2.02)		(3.44)		(-2.62)
DD_t		-0.002*		0.003**		-0.005***
		(-1.73)		(2.56)		(-9.53)
$NegE_t$		-0.032***		-0.021***		-0.012***
		(-28.43)		(-17.00)		(-17.34)
AC_t		0.005*		-0.034***		0.039***
		(1.95)		(-4.07)		(5.59)
Observations	526,163	526,163	526,163	526,163	526,163	526,163
Adjusted R-squared	0.132	0.159	0.074	0.080	0.026	0.030
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel B. Two Quarters Ahead

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	Rev_{t+2}	Rev_{t+2}	X_{t+2}	X_{t+2}	E_{t+2}	E_{t+2}
GE_t^{US}	0.037***	0.029**	0.026	0.018	0.013	0.012
	(2.72)	(2.49)	(1.17)	(0.88)	(1.13)	(1.05)
EMV_t^{US}	**-0.071*** **	**-0.075*** **	**-0.100*** **	**-0.103*** **	**0.025** **	**0.024** **
	(-3.74)	**(-5.00)**	**(-3.77)**	**(-4.50)**	**(2.25)**	**(2.09)**
A_t		-0.019***		-0.019***		-0.002***
		(-27.28)		(-20.44)		(-4.07)
D_t		-0.097		0.175**		-0.266***
		(-1.43)		(2.20)		(-4.14)
DD_t		-0.001		0.003**		-0.004***
		(-1.32)		(2.57)		(-7.57)
$NegE_t$		-0.022***		-0.019***		-0.003***
		(-21.98)		(-15.52)		(-4.49)
AC_t		0.002		0.048***		-0.036***
		(0.92)		(5.99)		(-5.71)
Observations	504,790	504,790	504,679	504,679	505,455	505,455
Adjusted R-squared	0.132	0.156	0.076	0.085	0.027	0.029
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel C. Three Quarters Ahead

Variable	(1) Rev_{t+3}	(2) Rev_{t+3}	(3) X_{t+3}	(4) X_{t+3}	(5) E_{t+3}	(6) E_{t+3}
GE_t^{US}	0.052***	0.043***	0.054***	0.044***	0.000	0.001
	(4.44)	(4.15)	(3.54)	(3.32)	(0.04)	(0.07)
EMV_t^{US}	**-0.059*** **	**-0.067*** **	**-0.096*** **	**-0.099*** **	**0.034*** **	**0.028*** **
	(-3.58)	**(-5.14)**	**(-4.63)**	**(-5.78)**	**(3.25)**	**(2.84)**
A_t		-0.022***		-0.024***		-0.001
		(-28.31)		(-23.40)		(-1.11)
D_t		-0.193**		0.034		-0.228***
		(-2.31)		(0.41)		(-2.99)
DD_t		-0.001		0.003***		-0.004***
		(-0.92)		(3.08)		(-7.50)
$NegE_t$		-0.011***		-0.017***		0.007***
		(-11.73)		(-12.59)		(7.72)
AC_t		0.002		0.118***		-0.097***
		(0.80)		(15.72)		(-16.31)
Observations	487,829	487,829	487,731	487,731	488,417	488,417
Adjusted R-squared	0.128	0.153	0.075	0.093	0.028	0.038
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel D. Four Quarters Ahead

Variable	(1) Rev_{t+4}	(2) Rev_{t+4}	(3) X_{t+4}	(4) X_{t+4}	(5) E_{t+4}	(6) E_{t+4}
GE_t^{US}	0.054***	0.044***	0.068***	0.054***	-0.011	-0.009
	(4.64)	(4.06)	(4.42)	(4.38)	(-1.31)	(-1.36)
EMV_t^{US}	**-0.030* **	**-0.044*** **	**-0.079*** **	**-0.074*** **	**0.047*** **	**0.026*** **
	(-1.85)	**(-3.09)**	**(-3.87)**	**(-5.06)**	**(3.74)**	**(2.94)**
A_t		-0.024***		-0.028***		0.001
		(-28.04)		(-24.53)		(1.63)
D_t		-0.135*		-0.088		-0.038
		(-1.69)		(-0.97)		(-0.61)
DD_t		0.000		0.001		-0.000
		(0.43)		(0.79)		(-0.55)
$NegE_t$		0.008***		-0.043***		0.051***
		(8.69)		(-28.09)		(38.65)
AC_t		-0.004		0.209***		-0.178***
		(-1.59)		(24.45)		(-25.90)
Observations	472,138	472,138	472,076	472,076	472,591	472,591
Adjusted R-squared	0.124	0.155	0.074	0.122	0.028	0.090
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Table 16 Panels A, B, C, and D present the results of regressing seasonally adjusted 1, 2, 3, and 4 quarter ahead revenues (Rev), net expenses (X), and earnings (E) on controls and macroeconomic growth expectations (GE^{US}) and uncertainty measured as Baker et al.'s Equity Market Volatility measure (EMV^{US}). Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

3.4.11 Bad News

Another concern is that my results could be driven by bad news rather than macroeconomic uncertainty. Uncertainty spikes during bad times, and it is difficult to identify instances in which uncertainty increases in response to good news. Bloom (2014) identifies the October 1982 business cycle turning point, which lies outside my sample period, as the only good news event that caused macroeconomic uncertainty to increase in recent times.

In my main test, I follow Baker and Bloom (2013) and address this issue by controlling for good and bad news through aggregate stock market returns. However, in the presence of nonlinearities, adding a control variable to a linear model might not be sufficient. Therefore, in untabulated analysis, I redo all of my main tests after excluding observations for which aggregate stock returns take a value below the 25th percentile of GE's distribution. The results are shown in Table 3.18. My inferences remain unchanged.

Table 17. Excluding Bad Event Quarters

Panel A. One Quarter Ahead

Variable	(1) Rev_{t+1}	(2) Rev_{t+1}	(3) X_{t+1}	(4) X_{t+1}	(5) E_{t+1}	(6) E_{t+1}
GE_t^{US}	0.009	-0.017	-0.003	-0.027	0.011	0.006
	(0.28)	(-0.63)	(-0.05)	(-0.59)	(0.53)	(0.27)
MU_t^{US}	**-0.023*** **	**-0.015*** **	**-0.029*** **	**-0.022*** **	**0.005*** **	**0.007*** **
	(-7.99)	**(-5.07)**	**(-6.90)**	**(-4.89)**	**(2.83)**	**(3.57)**
A_t		-0.015***		-0.014***		-0.003***
		(-17.49)		(-11.70)		(-4.04)
D_t		0.085		0.306**		-0.217**
		(1.07)		(2.55)		(-2.49)
DD_t		-0.001		0.004***		-0.005***
		(-1.14)		(3.03)		(-7.61)
$NegE_t$		-0.030***		-0.020***		-0.012***
		(-21.52)		(-13.84)		(-12.78)
AC_t		0.003		-0.025**		0.027***
		(0.71)		(-2.40)		(3.16)
Observations	298,053	298,053	298,053	298,053	298,053	298,053
Adjusted R-squared	0.148	0.172	0.093	0.098	0.042	0.045
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel B. Two Quarters Ahead

Variable	(1) Rev_{t+2}	(2) Rev_{t+2}	(3) X_{t+2}	(4) X_{t+2}	(5) E_{t+2}	(6) E_{t+2}
GE_t^{US}	0.029	-0.001	0.010	-0.020	0.020	0.016
	(1.46)	(-0.06)	(0.25)	(-0.58)	(0.97)	(0.75)
MU_t^{US}	**-0.020*** **	**-0.012*** **	**-0.027*** **	**-0.019*** **	**0.006*** **	**0.007*** **
	(-9.43)	**(-5.82)**	**(-8.75)**	**(-5.89)**	**(3.48)**	**(4.18)**
A_t		-0.017***		-0.017***		-0.002***
		(-21.78)		(-15.76)		(-2.94)
D_t		-0.136**		0.154		-0.286***
		(-2.00)		(1.53)		(-3.47)
DD_t		-0.001		0.003**		-0.004***
		(-0.83)		(2.51)		(-6.33)
$NegE_t$		-0.021***		-0.018***		-0.003***
		(-16.13)		(-11.61)		(-3.31)
AC_t		-0.001		0.047***		-0.038***
		(-0.31)		(4.81)		(-4.82)
Observations	284,267	284,267	284,205	284,205	284,609	284,609
Adjusted R-squared	0.152	0.172	0.094	0.103	0.045	0.047
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel C. Three Quarters Ahead

Variable	(1) Rev_{t+3}	(2) Rev_{t+3}	(3) X_{t+3}	(4) X_{t+3}	(5) E_{t+3}	(6) E_{t+3}
GE_t^{US}	0.048***	0.015	0.043*	0.009	0.008	0.005
	(2.73)	(1.04)	(1.90)	(0.53)	(0.57)	(0.35)
MU_t^{US}	**-0.017*** **	**-0.008*** **	**-0.023*** **	**-0.014*** **	**0.006*** **	**0.006*** **
	(-7.65)	**(-3.76)**	**(-7.49)**	**(-4.19)**	**(3.01)**	**(3.48)**
A_t		-0.020***		-0.021***		-0.001
		(-21.97)		(-17.13)		(-0.90)
D_t		-0.203**		0.005		-0.212**
		(-2.20)		(0.05)		(-2.53)
DD_t		-0.001		0.003***		-0.005***
		(-1.07)		(2.82)		(-7.34)
$NegE_t$		-0.011***		-0.016***		0.005***
		(-9.02)		(-8.07)		(4.68)
AC_t		0.000		0.112***		-0.094***
		(0.04)		(11.18)		(-12.13)
Observations	272,906	272,906	272,842	272,842	273,249	273,249
Adjusted R-squared	0.150	0.171	0.096	0.112	0.044	0.054
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel D. Four Quarters Ahead

Variable	(1) Rev_{t+4}	(2) Rev_{t+4}	(3) X_{t+4}	(4) X_{t+4}	(5) E_{t+4}	(6) E_{t+4}
GE_t^{US}	0.048**	0.008	0.050**	0.012	0.001	-0.005
	(2.39)	(0.48)	(2.38)	(0.72)	(0.04)	(-0.38)
MU_t^{US}	**-0.012*** **	**-0.004* **	**-0.021*** **	**-0.009** **	**0.008*** **	**0.005** **
	(-5.81)	**(-1.74)**	**(-6.49)**	**(-2.41)**	**(2.96)**	**(2.36)**
A_t		-0.023***		-0.026***		0.000
		(-24.70)		(-19.50)		(0.33)
D_t		-0.162*		-0.220**		0.045
		(-1.94)		(-2.12)		(0.62)
DD_t		0.000		0.001		-0.001
		(0.36)		(0.79)		(-0.79)
$NegE_t$		0.007***		-0.042***		0.049***
		(6.72)		(-21.35)		(30.53)
AC_t		-0.002		0.199***		-0.169***
		(-0.59)		(20.15)		(-20.99)
Observations	262,055	262,055	262,019	262,019	262,287	262,287
Adjusted R-squared	0.144	0.172	0.089	0.133	0.040	0.097
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Table 17 Panels A, B, C, and D present the results of regressing seasonally adjusted 1, 2, 3, and 4 quarter ahead revenues (Rev), net expenses (X), and earnings (E) on controls and macroeconomic growth expectations (GE^{US}) and uncertainty (MU^{US}) after excluding all observations with GE values below the 25th percentile of GE's distribution. Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

3.4.12 Control for Firm-Level Risk

Recent literature tests the effects of firm-level uncertainty on investment. While the relation is negative for capital expenditures and hiring, it is positive for R&D (Stein and Stone 2013). One concern is that firm and macro level investment are highly correlated so that my results could be driven by firm, rather than macro, uncertainty. To test this conjecture, I control for Hassan et al.'s (2019) firm-level risk measure. The results are shown in Table 3.19. All inferences remain unchanged.

Table 18. Control for Firm-Level Risk

Panel A. One Quarter Ahead

Variable	(1) Rev_{t+1}	(2) Rev_{t+1}	(3) X_{t+1}	(4) X_{t+1}	(5) E_{t+1}	(6) E_{t+1}
GE_t^{US}	0.019	0.021	-0.020	-0.020	0.039**	0.040***
	(0.64)	(0.76)	(-0.60)	(-0.61)	(2.58)	(2.68)
MU_t^{US}	**-0.017*** **	**-0.013*** **	**-0.017*** **	**-0.014*** **	**-0.001**	**0.001**
	(-4.00)	**(-3.48)**	**(-3.87)**	**(-3.54)**	**(-0.69)**	**(1.04)**
FR_t	-0.005***	-0.005***	-0.004***	-0.004***	-0.001***	-0.001***
	(-5.82)	(-5.96)	(-3.97)	(-3.93)	(-2.88)	(-2.84)
A_t		-0.022***		-0.014***		-0.009***
		(-19.49)		(-9.37)		(-8.66)
D_t		0.280***		0.511***		-0.221***
		(2.73)		(3.96)		(-2.74)
DD_t		-0.004***		-0.001		-0.003***
		(-2.97)		(-0.44)		(-4.06)
$NegE_t$		-0.020***		-0.012***		-0.008***
		(-11.51)		(-6.72)		(-7.97)
AC_t		0.027***		0.053***		-0.013
		(3.05)		(2.97)		(-1.01)
Observations	137,528	137,528	137,528	137,528	137,528	137,528
Adjusted R-squared	0.182	0.214	0.118	0.126	0.027	0.034
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel B. Two Quarters Ahead

Variable	(1) Rev_{t+2}	(2) Rev_{t+2}	(3) X_{t+2}	(4) X_{t+2}	(5) E_{t+2}	(6) E_{t+2}
GE_t^{US}	0.056**	0.059**	0.018	0.019	0.039**	0.041***
	(2.20)	(2.46)	(0.54)	(0.59)	(2.48)	(2.73)
MU_t^{US}	**-0.014*** **	**-0.010*** **	**-0.018*** **	**-0.015*** **	**0.004** **	**0.005*** **
	(-3.32)	**(-2.63)**	**(-3.82)**	**(-3.48)**	**(2.05)**	**(2.84)**
FR_t	-0.005***	-0.004***	-0.004***	-0.004***	-0.000	-0.001
	(-5.57)	(-5.73)	(-3.99)	(-3.98)	(-1.03)	(-1.30)
A_t		-0.025***		-0.017***		-0.009***
		(-19.49)		(-12.82)		(-7.87)
D_t		0.007		0.314**		-0.309***
		(0.06)		(2.45)		(-3.86)
DD_t		-0.004***		-0.001		-0.003***
		(-3.06)		(-0.53)		(-3.54)
$NegE_t$		-0.013***		-0.012***		-0.001
		(-9.92)		(-6.77)		(-0.72)
AC_t		0.015**		0.093***		-0.066***
		(2.08)		(5.61)		(-5.42)
Observations	135,777	135,777	135,761	135,761	135,796	135,796
Adjusted R-squared	0.180	0.211	0.120	0.134	0.029	0.037
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel C. Three Quarters Ahead

Variable	(1) Rev_{t+3}	(2) Rev_{t+3}	(3) X_{t+3}	(4) X_{t+3}	(5) E_{t+3}	(6) E_{t+3}
GE_t^{US}	0.080***	0.084***	0.071***	0.071***	0.012	0.016
	(3.93)	(4.32)	(2.95)	(3.26)	(0.85)	(1.18)
MU_t^{US}	**-0.010*** **	**-0.005* **	**-0.016*** **	**-0.012*** **	**0.006** **	**0.006*** **
	(-2.78)	**(-1.90)**	**(-3.69)**	**(-3.26)**	**(2.29)**	**(2.82)**
FR_t	-0.002***	-0.002***	-0.004***	-0.003***	0.001**	0.001*
	(-3.83)	(-4.02)	(-3.96)	(-3.93)	(2.10)	(1.67)
A_t		-0.028***		-0.021***		-0.008***
		(-19.89)		(-14.96)		(-7.67)
D_t		-0.106		0.239*		-0.349***
		(-0.92)		(1.97)		(-4.25)
DD_t		-0.004***		-0.001		-0.003***
		(-3.24)		(-0.76)		(-3.54)
$NegE_t$		-0.004***		-0.011***		0.007***
		(-3.63)		(-6.13)		(4.87)
AC_t		-0.000		0.132***		-0.122***
		(-0.01)		(6.92)		(-7.47)
Observations	134,069	134,069	134,052	134,052	134,090	134,090
Adjusted R-squared	0.174	0.207	0.122	0.143	0.029	0.048
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel D. Four Quarters Ahead

Variable	(1) Rev_{t+4}	(2) Rev_{t+4}	(3) X_{t+4}	(4) X_{t+4}	(5) E_{t+4}	(6) E_{t+4}
GE_t^{US}	0.070***	0.076***	0.089***	0.088***	-0.016	-0.009
	(3.47)	(4.06)	(3.77)	(4.39)	(-0.88)	(-0.69)
MU_t^{US}	**-0.003**	**0.001**	**-0.010** **	**-0.005**	**0.007** **	**0.006*** **
	(-0.90)	**(0.38)**	**(-2.52)**	**(-1.54)**	**(2.50)**	**(2.89)**
FR_t	-0.001	-0.001*	-0.002**	-0.001*	0.001*	0.000
	(-1.38)	(-1.81)	(-2.10)	(-1.67)	(1.76)	(0.63)
A_t		-0.031***		-0.024***		-0.008***
		(-20.48)		(-15.68)		(-7.49)
D_t		-0.180		0.040		-0.226***
		(-1.63)		(0.31)		(-2.61)
DD_t		-0.003**		-0.003**		-0.000
		(-2.49)		(-2.20)		(-0.76)
$NegE_t$		0.008***		-0.029***		0.037***
		(5.22)		(-11.70)		(16.60)
AC_t		-0.007		0.202***		-0.192***
		(-1.22)		(7.39)		(-8.08)
Observations	132,387	132,387	132,378	132,378	132,401	132,401
Adjusted R-squared	0.169	0.210	0.122	0.170	0.034	0.115
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Table 18 Panels A, B, C, and D present the results of regressing seasonally adjusted 1, 2, 3, and 4 quarter ahead revenues (Rev), net expenses (X), and earnings (E) on controls, Hassan et al.'s (2019) firm-level risk measure (FR), and macroeconomic growth expectations (GE^{US}) and uncertainty (MU^{US}). Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

3.4.13 Robustness to Alternative Macroeconomic Uncertainty Measures

Table 3.20 tests the robustness of my results to using Jurado et al.'s (2015)(JLN) macroeconomic uncertainty measure computed for 1 (JLN1), 3 (JLN2), and 12 (JLN3) months ahead. The JLN measures are based on the idea that an uncertainty measure should capture to what extend disturbances in the time series of important economic variables are forecastable from the perspective of economic agents. JLN operationalize the measure via computing the weighted average deviation from expectation from 132 monthly macroeconomic time series and combining them in a single number. My inferences remain unchanged. Revenues and expenses fall in response to macroeconomic uncertainty and the net effect on profitability is positive.

Table 19. US Quarterly Data: Jurado et al. (2015) Measures

Panel A. One Quarter Ahead

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variable	Rev_{t+1}	Rev_{t+1}	Rev_{t+1}	X_{t+1}	X_{t+1}	X_{t+1}	E_{t+1}	E_{t+1}	E_{t+1}
GE_t^{US}	0.008	0.008	0.010	-0.001	-0.001	0.003	0.010	0.010	0.008
	(0.76)	(0.75)	(0.86)	(-0.04)	(-0.03)	(0.12)	(0.83)	(0.81)	(0.71)
$JLN1_t$	-8.657***			-10.204***			1.254		
	(-8.13)			(-5.22)			(1.03)		
$JLN2_t$		-8.499***			-9.941***			1.162	
		(-8.08)			(-5.18)			(0.97)	
$JLN3_t$			-13.332***			-15.103***			1.349
			(-6.86)			(-4.39)			(0.66)
A_t	-0.015***	-0.015***	-0.015***	-0.013***	-0.013***	-0.013***	-0.004***	-0.004***	-0.004***
	(-27.51)	(-27.43)	(-27.28)	(-15.69)	(-15.73)	(-15.97)	(-7.41)	(-7.41)	(-7.34)
D_t	0.126*	0.126*	0.129*	0.311***	0.311***	0.316***	-0.179***	-0.179***	-0.181***
	(1.73)	(1.73)	(1.76)	(3.38)	(3.37)	(3.38)	(-2.68)	(-2.68)	(-2.70)
DD_t	-0.002*	-0.002*	-0.002*	0.003**	0.003**	0.003**	-0.005***	-0.005***	-0.005***
	(-1.91)	(-1.87)	(-1.79)	(2.44)	(2.47)	(2.54)	(-9.68)	(-9.68)	(-9.71)
$NegE_t$	-0.031***	-0.031***	-0.031***	-0.020***	-0.020***	-0.020***	-0.012***	-0.012***	-0.012***
	(-30.09)	(-29.97)	(-29.63)	(-17.26)	(-17.23)	(-17.13)	(-16.87)	(-16.89)	(-16.89)
AC_t	0.005*	0.005*	0.005*	-0.035***	-0.035***	-0.035***	0.039***	0.039***	0.039***
	(1.77)	(1.77)	(1.80)	(-4.12)	(-4.12)	(-4.10)	(5.61)	(5.60)	(5.60)
Observations	526,163	526,163	526,163	526,163	526,163	526,163	526,163	526,163	526,163
Adjusted R-squared	0.161	0.161	0.160	0.081	0.081	0.080	0.030	0.030	0.030
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel B. Two Quarters Ahead

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variable	Rev_{t+2}	Rev_{t+2}	Rev_{t+2}	X_{t+2}	X_{t+2}	X_{t+2}	E_{t+2}	E_{t+2}	E_{t+2}
GE_t^{US}	0.026***	0.026***	0.027***	0.014	0.015	0.017	0.012	0.012	0.010
	(2.80)	(2.78)	(2.81)	(0.91)	(0.90)	(0.98)	(1.03)	(1.01)	(0.86)
$JLN1_t$	-8.001***			-10.473***			2.169*		
	(-9.38)			(-7.78)			(1.79)		
$JLN2_t$		-7.887***			-10.257***			2.076*	
		(-9.37)			(-7.65)			(1.73)	
$JLN3_t$			-12.886***			-16.111***			2.759
			(-8.85)			(-6.44)			(1.27)
A_t	-0.018***	-0.018***	-0.018***	-0.017***	-0.018***	-0.018***	-0.003***	-0.003***	-0.003***
	(-30.31)	(-30.18)	(-29.94)	(-21.39)	(-21.38)	(-21.47)	(-4.86)	(-4.85)	(-4.76)
D_t	-0.118*	-0.118*	-0.117*	0.150*	0.150*	0.153**	-0.261***	-0.261***	-0.264***
	(-1.70)	(-1.70)	(-1.68)	(1.95)	(1.95)	(1.99)	(-4.24)	(-4.24)	(-4.27)
DD_t	-0.001	-0.001	-0.001	0.003**	0.003**	0.003**	-0.004***	-0.004***	-0.004***
	(-1.43)	(-1.40)	(-1.35)	(2.42)	(2.46)	(2.52)	(-7.51)	(-7.52)	(-7.55)
$NegE_t$	-0.021***	-0.021***	-0.021***	-0.018***	-0.018***	-0.019***	-0.003***	-0.003***	-0.003***
	(-22.43)	(-22.39)	(-22.24)	(-16.00)	(-15.94)	(-15.81)	(-4.83)	(-4.80)	(-4.63)
AC_t	0.002	0.002	0.002	0.047***	0.047***	0.047***	-0.036***	-0.036***	-0.036***
	(0.74)	(0.75)	(0.77)	(5.94)	(5.94)	(5.94)	(-5.70)	(-5.70)	(-5.71)
Observations	504,790	504,790	504,790	504,679	504,679	504,679	505,455	505,455	505,455
Adjusted R-squared	0.159	0.159	0.158	0.086	0.086	0.086	0.029	0.029	0.029
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel C. Three Quarters Ahead

Variable	(1) Rev_{t+3}	(2) Rev_{t+3}	(3) Rev_{t+3}	(4) X_{t+3}	(5) X_{t+3}	(6) X_{t+3}	(7) E_{t+3}	(8) E_{t+3}	(9) E_{t+3}
GE_t^{US}	0.043***	0.043***	0.043***	0.046***	0.046***	0.047***	-0.000	-0.000	-0.002
	(4.36)	(4.38)	(4.42)	(3.63)	(3.63)	(3.68)	(-0.00)	(-0.03)	(-0.21)
$JLN1_t$	-5.907***			-8.501***			2.430**		
	(-4.49)			(-6.64)			(2.24)		
$JLN2_t$		-5.844***			-8.301***			2.302**	
		(-4.47)			(-6.54)			(2.10)	
$JLN3_t$			-10.176***			-13.472***			3.044
			(-4.56)			(-6.22)			(1.56)
A_t	-0.021***	-0.021***	-0.021***	-0.022***	-0.022***	-0.023***	-0.001*	-0.001*	-0.001*
	(-30.48)	(-30.37)	(-30.32)	(-24.35)	(-24.28)	(-24.30)	(-1.81)	(-1.80)	(-1.67)
D_t	-0.205**	-0.205**	-0.206**	0.018	0.018	0.020	-0.224***	-0.224***	-0.227***
	(-2.38)	(-2.39)	(-2.40)	(0.21)	(0.21)	(0.23)	(-2.99)	(-3.00)	(-3.03)
DD_t	-0.001	-0.001	-0.001	0.003***	0.003***	0.003***	-0.004***	-0.004***	-0.004***
	(-0.96)	(-0.94)	(-0.91)	(3.03)	(3.06)	(3.10)	(-7.58)	(-7.60)	(-7.63)
$NegE_t$	-0.010***	-0.010***	-0.010***	-0.016***	-0.017***	-0.017***	0.007***	0.007***	0.007***
	(-11.41)	(-11.42)	(-11.37)	(-12.90)	(-12.87)	(-12.78)	(8.02)	(8.04)	(8.08)
AC_t	0.002	0.002	0.002	0.118***	0.118***	0.118***	-0.097***	-0.097***	-0.097***
	(0.66)	(0.66)	(0.67)	(15.68)	(15.68)	(15.69)	(-16.31)	(-16.31)	(-16.32)
Observations	487,829	487,829	487,829	487,731	487,731	487,731	488,417	488,417	488,417
Adjusted R-squared	0.154	0.154	0.154	0.094	0.094	0.093	0.038	0.038	0.038
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel D. Four Quarters Ahead

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variable	Rev_{t+4}	Rev_{t+4}	Rev_{t+4}	X_{t+4}	X_{t+4}	X_{t+4}	E_{t+4}	E_{t+4}	E_{t+4}
GE_t^{US}	0.045***	0.045***	0.043***	0.060***	0.060***	0.060***	-0.013*	-0.013*	-0.014*
	(4.06)	(4.09)	(4.01)	(4.84)	(4.89)	(4.89)	(-1.74)	(-1.77)	(-1.89)
$JLN1_t$	-3.566**			-4.896***			1.219*		
	(-2.19)			(-2.93)			(1.66)		
$JLN2_t$		-3.548**			-4.746***			1.106	
		(-2.18)			(-2.87)			(1.48)	
$JLN3_t$			-6.992**			-8.382***			1.227
			(-2.42)			(-2.96)			(0.91)
A_t	-0.024***	-0.024***	-0.024***	-0.027***	-0.027***	-0.027***	0.001	0.001	0.001
	(-29.86)	(-29.82)	(-30.04)	(-25.21)	(-25.15)	(-25.18)	(1.28)	(1.30)	(1.41)
D_t	-0.140*	-0.141*	-0.144*	-0.091	-0.091	-0.092	-0.040	-0.040	-0.043
	(-1.73)	(-1.74)	(-1.78)	(-0.98)	(-0.98)	(-0.99)	(-0.65)	(-0.66)	(-0.69)
DD_t	0.000	0.000	0.000	0.001	0.001	0.001	-0.000	-0.000	-0.000
	(0.42)	(0.43)	(0.42)	(0.80)	(0.82)	(0.84)	(-0.60)	(-0.62)	(-0.66)
$NegE_t$	0.008***	0.008***	0.008***	-0.043***	-0.043***	-0.043***	0.051***	0.051***	0.051***
	(8.83)	(8.83)	(8.80)	(-27.67)	(-27.66)	(-27.49)	(38.56)	(38.57)	(38.42)
AC_t	-0.004*	-0.004*	-0.004*	0.209***	0.209***	0.209***	-0.178***	-0.178***	-0.178***
	(-1.67)	(-1.67)	(-1.67)	(24.27)	(24.28)	(24.29)	(-25.88)	(-25.89)	(-25.89)
Observations	472,138	472,138	472,138	472,076	472,076	472,076	472,591	472,591	472,591
Adjusted R-squared	0.155	0.155	0.155	0.122	0.122	0.122	0.090	0.090	0.090
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Table 19 Panels A, B, C, and D present the results of regressing seasonally adjusted 1, 2, 3, and 4 quarter ahead revenues (Rev), net expenses (X), and earnings (E) on controls and macroeconomic growth expectations (GE^{US}) and uncertainty (MU^{US}) measured as Jurado et al.'s (2015) calculated for 1 (JLN1), 3 (JLN2), and 12 (JLN3) months ahead. Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

Within a VAR framework, Berger et al. (2019) separate realized from expected volatility. They argue and find that expected volatility, i.e. uncertainty, measured as the Chicago Board Options Exchange's Volatility Index (VIX), does not influence agents' decisions. I test the robustness of my results to using the average closing level of VIX over the firm quarter as my measure for macroeconomic uncertainty. The results are shown in Table 3.21. All inferences remain unchanged.

Table 20. US Quarterly Data: VIX

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Variable	Rev_{t+1}	X_{t+1}	E_{t+1}	Rev_{t+2}	X_{t+2}	E_{t+2}	Rev_{t+3}	X_{t+3}	E_{t+3}	Rev_{t+4}	X_{t+4}	E_{t+4}
GE_t^{US}	-0.027	-0.074**	0.045**	0.017	-0.030	0.046**	0.056***	0.034*	0.025**	0.061***	0.067***	-0.004
	(-1.33)	(-2.41)	(2.31)	(1.01)	(-1.11)	(2.50)	(3.29)	(1.91)	(2.33)	(3.28)	(3.66)	(-0.54)
VIX_t	-0.001***	-0.001***	0.000**	-0.001***	-0.001***	0.000***	-0.001***	-0.001***	0.000***	-0.000	-0.000***	0.000***
	(-5.93)	(-5.43)	(2.34)	(-8.82)	(-6.43)	(3.06)	(-6.03)	(-6.99)	(2.84)	(-1.29)	(-3.24)	(3.25)
A_t	-0.017***	-0.016***	-0.004***	-0.021***	-0.022***	-0.002**	-0.024***	-0.028***	0.000	-0.028***	-0.035***	0.003***
	(-19.09)	(-10.50)	(-3.39)	(-20.47)	(-15.42)	(-2.30)	(-20.95)	(-18.16)	(0.41)	(-20.84)	(-19.56)	(2.65)
D_t	0.273***	0.452***	-0.166*	0.005	0.276***	-0.269***	-0.154	0.100	-0.271***	-0.102	-0.045	-0.038
	(3.30)	(4.23)	(-1.95)	(0.06)	(3.06)	(-3.39)	(-1.49)	(1.04)	(-2.84)	(-1.08)	(-0.42)	(-0.47)
DD_t	-0.005***	0.000	-0.005***	-0.004***	0.001	-0.004***	-0.003***	0.002	-0.004***	-0.002	0.000	-0.001**
	(-4.89)	(0.21)	(-8.01)	(-3.59)	(0.67)	(-6.00)	(-3.08)	(1.38)	(-5.36)	(-1.65)	(0.00)	(-2.16)
$NegE_t$	-0.021***	-0.010***	-0.011***	-0.012***	-0.008***	-0.004***	-0.003***	-0.005***	0.003**	0.014***	-0.041***	0.054***
	(-20.01)	(-7.93)	(-14.63)	(-12.96)	(-5.95)	(-4.41)	(-2.71)	(-2.97)	(2.59)	(12.30)	(-17.89)	(30.05)
AC_t	0.000	-0.017*	0.018**	-0.001	0.058***	-0.046***	-0.001	0.127***	-0.104***	-0.004	0.220***	-0.186***
	(0.01)	(-1.70)	(2.26)	(-0.50)	(5.89)	(-6.19)	(-0.40)	(12.53)	(-12.66)	(-1.52)	(20.32)	(-21.25)
Observations	286,494	286,494	286,494	274,695	274,640	274,986	264,413	264,364	264,733	255,035	255,009	255,294
Adjusted R-squared	0.156	0.076	0.036	0.154	0.081	0.038	0.152	0.090	0.048	0.156	0.119	0.097
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Table 20 presents the results of regressing seasonally adjusted 1, 2, 3, and 4 quarter ahead revenues (Rev), net expenses (X), and earnings (E) on controls and macroeconomic growth expectations (GE^{US}) and uncertainty (MU^{US}) measured as Chicago Board Options Exchange's Volatility Index (VIX). Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

3.4.14 Asset Resalability as an Implicit Adjustment Cost

Adjustment costs appear not only in explicit form, such as the installment costs of a machine, but also in implicit form. One example of an implicit adjustment cost is the resalability of assets (Schlingemann et al. 2002). Firms are more hesitant to invest in new assets when the resale market for these assets is illiquid as the cost associated with selling them will be higher. For example, the market for used cars is more liquid than the market for used printing machines. In consequence, ceteris paribus, a car rental company faces lower implicit investment adjustment costs implicit in the difficulty of selling the used asset in a secondary market than a printing company. The difficulty of reselling an asset makes divesture less attractive. Thus, macroeconomic uncertainty induced divestures should be less extensive in industries for which it is harder to resell their used assets.

I follow Balasubramanian and Sivadasan (2009) and measure the liquidity of an industry's used asset market as the percentage of industry capital expenditures arising from investment in used instead of new assets. I calculate this ratio at the 3-digit NAICS level using the Census Bureau's Annual Capital Expenditures Survey, which is available on the Census website for the 1996 to 2016 period.[15] For each firm quarter, I create an indicator for whether the percentage of total capital expenditures arising from used asset purchases in its 3-digit NAICS industry is above the sample median (*Resalability*) and adjust my main tests for COGS, net operating expenses, net non-operating expenses, and net overall expenses by interacting *Resalability* with my aggregate growth expectations and uncertainty measures. The results are shown in

[15]See https://www.census.gov/programs-surveys/aces.html. I thank Elia Ferracuti for sharing his processed version of these data with me.

Table 3.22.

Table 21. US Quarterly Data: Asset Resalability

Panel A. One Quarter Ahead

	(1)	(2)	(3)	(4)
Variable	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}	X_{t+1}
GE_t^{US}	0.006	0.004	-0.013**	-0.005
	(0.46)	(0.70)	(-2.32)	(-0.23)
MU_t^{US}	-0.015***	-0.009***	-0.000	-0.025***
	(-6.08)	(-7.22)	(-0.18)	(-6.73)
$Resalability_t$	0.006***	0.000	0.001	0.008***
	(3.75)	(0.26)	(1.61)	(3.14)
$GE_t^{US} \times Resalability_t$	0.013***	0.004	0.011***	0.032***
	(2.75)	(1.02)	(3.25)	(3.13)
$MU_t^{US} \times Resalability_t$	**-0.004*** **	**0.001**	**-0.001** **	**-0.006*** **
	(-3.33)	**(0.59)**	**(-2.17)**	**(-2.62)**
A_t	-0.009***	-0.003***	-0.000	-0.013***
	(-14.24)	(-8.48)	(-0.93)	(-11.21)
D_t	0.167**	0.028	0.117***	0.345***
	(2.52)	(0.82)	(2.80)	(3.09)
DD_t	-0.000	0.002***	0.001***	0.002*
	(-0.13)	(3.63)	(3.49)	(1.85)
$NegE_t$	-0.016***	-0.004***	0.002***	-0.017***
	(-20.63)	(-11.15)	(6.05)	(-14.77)
AC_t	-0.008**	-0.025***	0.002	-0.027***
	(-2.32)	(-6.18)	(0.53)	(-2.91)
Observations	435,772	435,772	435,772	435,772
Adjusted R-squared	0.119	0.084	0.002	0.085
Fixed Effects	Firm	Firm	Firm	Firm

Panel B. Two Quarters Ahead

Variable	(1) $COGS_{t+2}$	(2) OX_{t+2}	(3) NOX_{t+2}	(4) X_{t+2}
GE_t^{US}	0.023**	0.010**	-0.015***	0.017
	(2.21)	(2.13)	(-2.60)	(0.81)
MU_t^{US}	-0.012***	-0.007***	-0.002**	-0.022***
	(-5.51)	(-6.37)	(-2.02)	(-5.85)
$Resalability_t$	0.005***	-0.000	0.001	0.007**
	(3.01)	(-0.07)	(0.77)	(2.39)
$GE_t^{US} \times Resalability_t$	0.011**	0.002	0.010***	0.027***
	(2.46)	(0.66)	(2.74)	(2.68)
$MU_t^{US} \times Resalability_t$	**-0.004*** **	**0.001**	**-0.001**	**-0.005** **
	(-3.02)	**(0.76)**	**(-1.01)**	**(-2.01)**
A_t	-0.012***	-0.005***	-0.001*	-0.018***
	(-17.80)	(-12.29)	(-1.75)	(-16.13)
D_t	0.014	0.022	0.144***	0.239**
	(0.24)	(0.71)	(3.72)	(2.53)
DD_t	0.000	0.001***	0.001*	0.003**
	(0.18)	(3.82)	(1.97)	(1.99)
$NegE_t$	-0.013***	-0.006***	0.002***	-0.016***
	(-18.91)	(-14.70)	(5.37)	(-13.71)
AC_t	0.003	-0.000	0.023***	0.054***
	(0.95)	(-0.15)	(6.85)	(5.96)
Observations	419,985	418,877	418,890	422,485
Adjusted R-squared	0.123	0.086	0.007	0.089
Fixed Effects	Firm	Firm	Firm	Firm

Panel C. Three Quarters Ahead

Variable	(1) $COGS_{t+3}$	(2) OX_{t+3}	(3) NOX_{t+3}	(4) X_{t+3}
GE_t^{US}	0.038***	0.019***	-0.006	0.053***
	(4.89)	(4.77)	(-1.17)	(4.01)
MU_t^{US}	-0.009***	-0.005***	-0.003**	-0.017***
	(-4.95)	(-5.53)	(-2.51)	(-5.25)
$Resalability_t$	0.003*	-0.000	-0.000	0.004
	(1.87)	(-0.36)	(-0.06)	(1.40)
$GE_t^{US} \times Resalability_t$	0.009*	-0.001	0.006*	0.014
	(1.67)	(-0.39)	(1.76)	(1.50)
$MU_t^{US} \times Resalability_t$	**-0.003****	**0.001**	**0.000**	**-0.002**
	(-2.16)	**(1.17)**	**(0.13)**	**(-1.02)**
A_t	-0.014***	-0.007***	-0.001**	-0.023***
	(-20.70)	(-15.03)	(-2.39)	(-19.61)
D_t	-0.069	-0.011	0.097***	0.042
	(-1.15)	(-0.35)	(3.04)	(0.49)
DD_t	0.000	0.002***	0.001***	0.003***
	(0.28)	(3.79)	(2.93)	(2.68)
$NegE_t$	-0.009***	-0.007***	0.002***	-0.014***
	(-13.35)	(-16.62)	(2.85)	(-10.80)
AC_t	0.016***	0.015***	0.045***	0.121***
	(4.35)	(4.09)	(14.88)	(14.82)
Observations	410,015	408,807	408,822	412,347
Adjusted R-squared	0.123	0.086	0.013	0.098
Fixed Effects	Firm	Firm	Firm	Firm

Panel D. Four Quarters Ahead

Variable	(1) $COGS_{t+4}$	(2) OX_{t+4}	(3) NOX_{t+4}	(4) X_{t+4}
GE_t^{US}	0.037***	0.020***	0.003	0.063***
	(4.73)	(4.89)	(0.50)	(5.24)
MU_t^{US}	-0.003**	-0.002*	-0.002	-0.007**
	(-2.09)	(-1.74)	(-1.59)	(-2.46)
$Resalability_t$	0.002	0.001	-0.001	0.002
	(0.87)	(0.59)	(-0.82)	(0.56)
$GE_t^{US} \times Resalability_t$	0.012**	-0.006*	0.002	0.007
	(2.04)	(-1.76)	(0.47)	(0.65)
$MU_t^{US} \times Resalability_t$	**-0.002**	**-0.000**	**0.001**	**-0.001**
	(-1.42)	**(-0.04)**	**(1.21)**	**(-0.38)**
A_t	-0.018***	-0.009***	-0.001***	-0.028***
	(-22.98)	(-17.20)	(-2.67)	(-21.27)
D_t	-0.093	-0.018	0.016	-0.076
	(-1.37)	(-0.55)	(0.48)	(-0.84)
DD_t	0.001	0.002***	-0.001**	0.001
	(0.66)	(3.63)	(-2.08)	(1.18)
$NegE_t$	-0.006***	-0.010***	-0.018***	-0.042***
	(-8.17)	(-20.40)	(-21.54)	(-26.05)
AC_t	0.024***	0.030***	0.079***	0.214***
	(5.49)	(7.94)	(23.25)	(23.62)
Observations	401,036	400,069	400,083	402,201
Adjusted R-squared	0.127	0.094	0.039	0.127
Fixed Effects	Firm	Firm	Firm	Firm

Table 21 Panels A, B, C, and D present the results of regressing seasonally adjusted 1, 2, 3, and 4 quarter ahead cost of goods sold (COGS), net operating expenses (OX), net non-operating expenses (NOX), and net expenses (X) on controls and macroeconomic growth expectations (GE^{US}) and uncertainty (MU^{US}) interacted with asset resalability (Resalability). Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

The coefficient of interest, the interaction term between resalability and macroeconomic uncertainty, correlates negatively with COGS, net non-operating expenses, and net overall expenses, and is not significantly related to net operating expenses. Thus, firms facing lower investment implicit investment adjustment costs cut expenses more under macroeconomic uncertainty.

3.4.15 Reporting Frequency

Kraft et al. (2017) find that the introduction of quarterly financial reporting in the US in 1970 led to a myopia induced fall in investment. To test whether reporting frequency is an important driver behind my findings, I exploit cross-country variation in reporting frequency. Specifically, I test how my results vary for firms that report quarterly vs. annually, quarterly vs. semi-annually, and semi-annually vs. annually.

Table 3.23 shows the results. Panel A tests how my results vary for firms reporting quarterly rather than semi-annually. To ensure that my results are not exclusively driven by the large number of US observations, I exclude US firms from my sample. Further, I exclude all observations for which I am unable to determine whether the firm reports quarterly, semi-anually, or annually. Next, I interact an indicator that the firm reports quarterly (R^{Qtr}) with my macroeconomic uncertainty measure and exclude all firm-year observations following semi-annual reporting. Consistent with Kraft et al.'s (2017) hypothesis that higher reporting frequency leads to lower investment, I find that the negative effect of macroeconomic uncertainty is pronounced for net operating expenses (-0.005, t = -2.18). Managers who report on a quarterly rather than an annual basis cut investment more, leading to lower net operating expenses.

Table 22. International Annual Data: Reporting Frequency

Panel A. Quarterly vs. Annual Reporting

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+1}	GP_{t+1}	OP_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}
GE_t^g	0.366**	0.098**	0.045*	0.052*	0.258**	0.056	-0.009
	(2.56)	(2.45)	(1.96)	(1.80)	(2.32)	(1.62)	(-0.54)
MU_t^g	-0.042**	-0.003	0.003	0.010**	-0.040**	-0.006	-0.005*
	(-2.14)	(-0.61)	(1.19)	(2.09)	(-2.30)	(-1.20)	(-1.73)
$GE_t^g \times R^{Qtr}$	0.118	-0.091	0.011	0.000	0.231	-0.111**	0.016
	(0.58)	(-1.38)	(0.30)	(0.00)	(1.53)	(-2.22)	(1.08)
$MU_t^g \times R^{Qtr}$	**-0.004**	**-0.004****	**0.000**	**0.001**	**0.001**	**-0.005****	**-0.000**
	(-0.56)	**(-2.01)**	**(0.15)**	**(0.31)**	**(0.12)**	**(-2.18)**	**(-0.15)**
A_t	-0.060***	-0.022***	-0.022***	-0.028***	-0.038***	-0.001	0.005***
	(-10.39)	(-13.64)	(-10.66)	(-7.21)	(-7.68)	(-0.42)	(3.09)
D_t	0.165**	0.081**	0.049*	0.042	0.081	0.038	0.014
	(2.07)	(2.38)	(1.83)	(1.37)	(1.30)	(1.15)	(0.73)
DD_t	-0.000	-0.002**	-0.003*	0.002	0.003	0.000	-0.004***
	(-0.02)	(-2.03)	(-1.87)	(1.07)	(0.57)	(0.22)	(-2.80)
$NegE_t$	-0.024***	0.018***	0.050***	0.088***	-0.040***	-0.030***	-0.034***
	(-3.08)	(6.23)	(10.55)	(14.64)	(-7.43)	(-7.43)	(-14.40)
AC_t	0.063***	-0.005	-0.049***	-0.166***	0.067***	0.042***	0.088***
	(5.78)	(-1.42)	(-4.67)	(-9.53)	(7.39)	(4.59)	(13.75)
Observations	124,868	124,868	124,868	124,868	124,868	124,868	124,868
Adjusted R-squared	0.165	0.158	0.142	0.180	0.136	0.174	0.069
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel B. Quarterly vs. Semi-Annual Reporting

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+1}	GP_{t+1}	OP_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}
GE_t^g	0.425***	0.110**	0.107***	0.090***	0.318***	0.002	0.020**
	(3.56)	(2.25)	(4.23)	(3.44)	(3.55)	(0.05)	(2.03)
MU_t^g	-0.039***	-0.002	0.007**	0.017***	-0.040***	-0.009	-0.008***
	(-2.97)	(-0.41)	(2.36)	(3.11)	(-2.97)	(-1.35)	(-3.15)
$GE_t^g \times R^{Qtr}$	0.097	-0.100	-0.043	-0.034	0.210	-0.062	-0.013
	(0.44)	(-1.62)	(-1.21)	(-0.79)	(1.23)	(-1.46)	(-0.91)
$MU_t^g \times R^{Qtr}$	**0.004**	**0.000**	**0.005**	**0.007**	**0.005**	**-0.005**	**-0.001**
	(0.40)	**(0.03)**	**(1.38)**	**(1.51)**	**(0.61)**	**(-1.50)**	**(-0.89)**
A_t	-0.045***	-0.019***	-0.025***	-0.040***	-0.026***	0.007	0.010***
	(-6.35)	(-8.18)	(-6.04)	(-4.74)	(-4.46)	(1.51)	(3.95)
D_t	0.321**	0.102**	0.047	0.078**	0.215**	0.059	-0.023
	(2.24)	(2.16)	(1.29)	(2.40)	(2.06)	(1.29)	(-0.77)
DD_t	-0.004	-0.002	-0.006***	-0.004	-0.002	0.003	-0.002
	(-0.94)	(-1.50)	(-2.88)	(-0.98)	(-0.50)	(1.53)	(-0.83)
$NegE_t$	-0.022***	0.014***	0.047***	0.086***	-0.035***	-0.032***	-0.037***
	(-4.32)	(3.54)	(6.97)	(8.27)	(-8.83)	(-7.62)	(-10.62)
AC_t	0.042***	-0.012**	-0.072***	-0.229***	0.057***	0.060***	0.114***
	(2.93)	(-2.40)	(-4.50)	(-9.16)	(5.87)	(4.22)	(16.49)
Observations	172,534	172,534	172,534	172,534	172,534	172,534	172,534
Adjusted R-squared	0.137	0.105	0.092	0.141	0.121	0.112	0.061
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel C. Semi-Annual vs. Annual Reporting

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+1}	GP_{t+1}	OP_{t+1}	E_{t+1}	$COGS_{t+1}$	OX_{t+1}	NOX_{t+1}
GE_t^g	0.339***	0.095**	0.035	0.033	0.230**	0.062	-0.003
	(2.71)	(2.50)	(1.20)	(0.86)	(2.41)	(1.57)	(-0.18)
MU_t^g	-0.045***	-0.002	0.010**	0.020***	-0.046***	-0.010	-0.007***
	(-2.93)	(-0.24)	(2.16)	(2.87)	(-3.19)	(-1.54)	(-3.66)
$GE_t^g \times R^{Semi}$	0.093	0.021	0.071***	0.066**	0.090	-0.055	0.014
	(0.77)	(0.45)	(3.89)	(2.19)	(1.10)	(-1.18)	(0.85)
$MU_t^g \times R^{Semi}$	**-0.017*** **	**-0.005** **	**-0.001**	**0.003**	**-0.012*** **	**-0.005***	**-0.003*** **
	(-4.59)	**(-2.45)**	**(-0.47)**	**(1.29)**	**(-2.75)**	**(-1.70)**	**(-3.02)**
A_t	-0.052***	-0.022***	-0.026***	-0.039***	-0.030***	0.004	0.008***
	(-4.52)	(-7.37)	(-9.13)	(-6.54)	(-3.13)	(0.66)	(4.89)
D_t	0.377**	0.135*	0.025	0.058**	0.236**	0.121**	-0.028
	(2.26)	(1.91)	(0.69)	(2.03)	(2.43)	(2.09)	(-0.80)
DD_t	-0.001	-0.003	-0.006	-0.001	0.001	0.003	-0.004
	(-0.13)	(-0.96)	(-1.63)	(-0.21)	(0.12)	(0.98)	(-1.25)
$NegE_t$	-0.033***	0.008***	0.041***	0.085***	-0.040***	-0.032***	-0.040***
	(-6.56)	(3.63)	(6.15)	(6.81)	(-7.51)	(-6.36)	(-7.61)
AC_t	0.035***	-0.012*	-0.074***	-0.223***	0.050***	0.061***	0.103***
	(2.90)	(-1.77)	(-3.14)	(-6.19)	(7.83)	(3.18)	(11.70)
Observations	151,598	151,598	151,598	151,598	151,598	151,598	151,598
Adjusted R-squared	0.166	0.097	0.057	0.093	0.126	0.083	0.016
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Table 22 Panels presents the results of regressing changes in one year ahead revenues (Rev), gross profits (GP), operating profits (OP), earnings (E), cost of goods sold (COGS), operating expenses (OX), and non-operating expenses (NOX) on controls and macroeconomic growth expectations (GE^g) and uncertainty (MU^g). Panel A (B, C) tests whether the effect of macroeconomic uncertainty is stronger for firms reporting quarterly (R^{Qtr}) vs. annually (quarterly vs. semi-annually (R^{Semi}), semi-annually vs. annually). Variable definitions are in Appendix A. Standard errors are clustered by country and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

Panel B includes all firms following semi-annual reporting and excludes all firms following annual reporting. I do not find evidence that reporting frequency effects managers investment decisions when employing quarterly rather than semi-annual reporting.

Panel C includes all firms following semi-annual and annual reporting and excludes all firms following quarterly reporting. I examine the differential effect of annual vs. semi-annual reporting via interacting an indicator that the firm reports semi-annual (R^{Semi}) with my macroeconomic uncertainty measure. I find that the negative effect of macroeconomic uncertainty on COGS (-0.012, t = -2.75), net operating expenses (-0.005, t = -1.70), and net non-operating expenses (-0.003, t = -3.02) is pronounced for firms reporting semi-annually, again consistent with Kraft et al.'s (2017) hypothesis.

In sum, consistent with reporting frequency inducing myopic investment, I find evidence that firms reporting quarterly or semi-annually rather than annually cut investment more. However, there is no significant evidence that the reaction differs for firms reporting on a quarterly rather than a semi-annual basis.

3.4.16 EPUI Stationarity and Underlying Data Generating Process

One concern is that EPUI might not be stationary. In consequence, it is hard to distinguish between the effects of an uncertainty shock in the current period from the effects of uncertainty shocks in prior periods. To explore whether EPUI is stationary, I start by analyzing its autocorrelation function. EPUI is correlated over time with autocorrelation coefficients of 0.687, 0.502, and 0.413 for lags 1 to 3. I account for this autocorrelation by constructing an alternative EPUI measure, MU_t^{ϵ}, computed as the residual of an AR(1) regression of EPUI of its lagged value. Figure 3.6 plots

the residual measure normalized around 1 over time. Relative to EPUI, MU_t^{ϵ} autocorrelations are much weaker with autocorrelation coefficients of -0.039, -0.033, and -0.026 for lag 1, 2, and 3.

Figure 7. Economic Policy Uncertainty AR(1) Residual

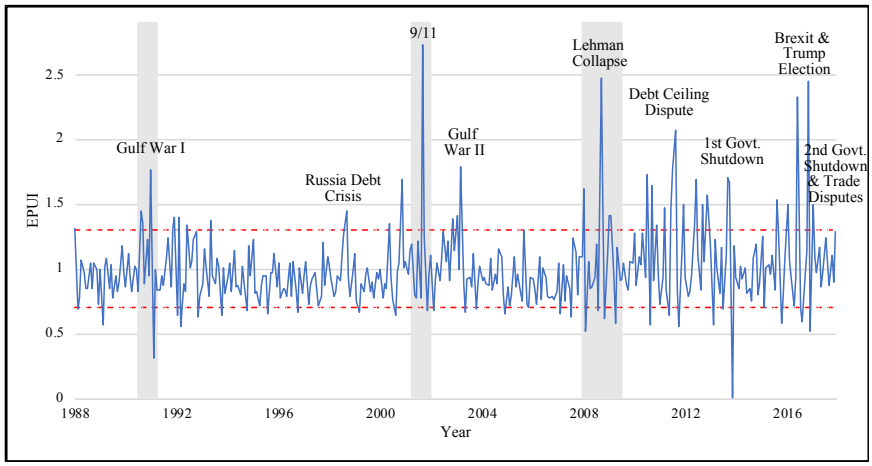


Figure 7 plots the AR(1) residual of Baker et al.'s (2016) US Economic Policy Uncertainty Index over time. NBER recessions are shaded in grey. Red dashed lines depict the one-standard-deviation confidence interval.

I reestimate my main tests using this alternative macroeconomic uncertainty measure. The results are shown in 3.24. As expected, purging EPUI's time-series variation results in lower slope coefficient magnitudes. However, I still find that revenues and expenses fall and that profits rise in response to macroeconomic uncertainty. Thus, my main inferences remain unchanged.

Table 23. US Quarterly Data: Alternative EPUI AR(1) Residual News Measure

Panel A. One Quarter Ahead

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	Rev_{t+1}	Rev_{t+1}	X_{t+1}	X_{t+1}	E_{t+1}	E_{t+1}
GE_t^{US}	0.028	0.024	0.021	0.019	0.009	0.007
	(1.56)	(1.59)	(0.90)	(0.85)	(0.91)	(0.73)
MU_t^{ε}	**-0.011*** **	**-0.008*** **	**-0.011*** **	**-0.009*** **	**0.000**	**0.001**
	(-5.08)	**(-3.90)**	**(-3.44)**	**(-2.70)**	**(0.01)**	**(0.34)**
A_t		-0.016***		-0.014***		-0.004***
		(-23.31)		(-14.91)		(-7.04)
D_t		0.173**		0.366***		-0.185***
		(2.26)		(3.60)		(-2.66)
DD_t		-0.002		0.003***		-0.005***
		(-1.48)		(2.70)		(-9.50)
$NegE_t$		-0.032***		-0.021***		-0.012***
		(-27.25)		(-16.34)		(-16.67)
AC_t		0.006**		-0.034***		0.039***
		(1.98)		(-4.02)		(5.58)
Observations	526,163	526,163	526,163	526,163	526,163	526,163
Adjusted R-squared	0.137	0.161	0.077	0.082	0.026	0.030
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel B. Two Quarters Ahead

	(1)	(2)	(3)	(4)	(5)	(6)
Variable	Rev_{t+2}	Rev_{t+2}	X_{t+2}	X_{t+2}	E_{t+2}	E_{t+2}
GE_t^{US}	0.043***	0.040***	0.035	0.031	0.010	0.010
	(2.65)	(2.88)	(1.51)	(1.49)	(1.02)	(1.01)
MU_t^{ε}	**-0.011*** **	**-0.008*** **	**-0.016*** **	**-0.013*** **	**0.004** **	**0.004** **
	(-3.98)	**(-2.98)**	**(-5.53)**	**(-4.45)**	**(2.22)**	**(2.57)**
A_t		-0.019***		-0.018***		-0.003***
		(-26.51)		(-19.43)		(-4.41)
D_t		-0.073		0.208**		-0.273***
		(-1.05)		(2.46)		(-4.18)
DD_t		-0.001		0.003***		-0.004***
		(-1.07)		(2.64)		(-7.32)
$NegE_t$		-0.022***		-0.020***		-0.003***
		(-21.28)		(-15.03)		(-4.04)
AC_t		0.003		0.048***		-0.036***
		(0.97)		(6.01)		(-5.72)
Observations	504,790	504,790	504,679	504,679	505,455	505,455
Adjusted R-squared	0.135	0.157	0.078	0.086	0.027	0.029
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel C. Three Quarters Ahead

Variable	(1) Rev_{t+3}	(2) Rev_{t+3}	(3) X_{t+3}	(4) X_{t+3}	(5) E_{t+3}	(6) E_{t+3}
GE_t^{US}	0.058***	0.055***	0.067***	0.062***	-0.006	-0.004
	(4.36)	(4.76)	(3.81)	(4.15)	(-0.58)	(-0.44)
MU_t^{ε}	**-0.009****	**-0.005**	**-0.012*****	**-0.008****	**0.003***	**0.003***
	(-2.29)	**(-1.47)**	**(-3.03)**	**(-2.14)**	**(1.82)**	**(1.94)**
A_t		-0.021***		-0.023***		-0.001
		(-28.05)		(-23.17)		(-1.45)
D_t		-0.171**		0.066		-0.238***
		(-2.03)		(0.79)		(-3.09)
DD_t		-0.001		0.004***		-0.004***
		(-0.70)		(3.23)		(-7.44)
$NegE_t$		-0.011***		-0.018***		0.007***
		(-12.05)		(-12.43)		(7.50)
AC_t		0.002		0.119***		-0.097***
		(0.85)		(15.76)		(-16.33)
Observations	487,829	487,829	487,731	487,731	488,417	488,417
Adjusted R-squared	0.129	0.153	0.076	0.093	0.028	0.039
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Panel D. Four Quarters Ahead

Variable	(1) Rev_{t+4}	(2) Rev_{t+4}	(3) X_{t+4}	(4) X_{t+4}	(5) E_{t+4}	(6) E_{t+4}
GE_t^{US}	0.055***	0.053***	0.080***	0.071***	-0.021*	-0.015*
	(4.55)	(4.67)	(4.48)	(5.17)	(-1.76)	(-1.70)
MU_t^{ε}	**-0.006**	**-0.002**	**-0.008****	**-0.003**	**0.002**	**0.001**
	(-1.54)	**(-0.64)**	**(-2.02)**	**(-0.80)**	**(1.65)**	**(1.10)**
A_t		-0.024***		-0.028***		0.001
		(-27.94)		(-24.35)		(1.44)
D_t		-0.119		-0.062		-0.047
		(-1.48)		(-0.68)		(-0.76)
DD_t		0.001		0.001		-0.000
		(0.56)		(0.97)		(-0.70)
$NegE_t$		0.008***		-0.043***		0.051***
		(8.24)		(-26.91)		(37.16)
AC_t		-0.004		0.210***		-0.178***
		(-1.54)		(24.31)		(-25.82)
Observations	472,138	472,138	472,076	472,076	472,591	472,591
Adjusted R-squared	0.125	0.154	0.075	0.122	0.029	0.090
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm

Table 23 Panels A, B, C, and D present the results of regressing seasonally adjusted 1, 2, 3, and 4 quarter ahead revenues (Rev), net expenses (X), and earnings (E) on controls and macroeconomic growth expectations (GE^{US}) and uncertainty measures as the residual obtained from an AR(1) model estimated for Baker et al.'s (2016) Economic Policy Uncertainty Index (MU^{ε}). Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

An alternative approach would be to specify a Vector Autoregression (VAR) model to purge EPUI variation arising from other macroeconomic variables. However, as argued by Jordà (2005) and Favara and Imbs (2015), VAR models rely on linear approximations whose approximation errors compound over horizons longer than 1 period in the future and become large quickly. Using response function as in my main tests provides several benefits over the VAR approach (Jordà 2005):

1. The model can be estimated via OLS rather than relying on asymptotic delta-method approximations or numerical techniques
2. The approach is more robust to misspecification than VARs
3. The resulting standard errors are appropriate
4. The model can easily accommodate experimentation with highly non-linear specifications that are often impractical or infeasible in a multivariate VAR context

3.4.17 Disentangling Price and Quantity Effects

From main results it is unclear whether the fall is revenue is driven by price or quantity effects, that is, whether the fall in revenues is caused by consumers buying fewer goods and services or by management selling an unchanged amount of goods and services for a lower price. Unfortunately, data separating revenues into prices paid and quantities sold is not readily available for all firms. To disentangle quantity from price effects, I use airline industry data featured in Cannon (2014). I replace the dependent variable in my main tests with the quantity, measured as the aircraft miles flown in each flight multiplied by the number of seats occupied by paying customers

on that flight, and price, measured as the percentage change in the average selling price per revenue passenger mile over the past fiscal year.[16] While this analysis allows me to disentangle price from quantity effects, it is unclear whether the documented effects would generalize to other industries. Further, focussing on such a small subset of the data limits the power of my tests.

Table 3.25 Panels A and B present the results for quantity and price. In response to macroeconomic uncertainty both quantity and price fall one to three quarters ahead. However, the relation is statistically significant only one quarter ahead, potentially due to power issues arising from the small number of observations. This is evidence that macroeconomic uncertainty affects consumers by inducing them to buy less quantity, but also managers by inducing them to cut prices.

[16]I thank Jim Cannon for sharing his hand-collected data with me.

Table 24. US Quarterly Airline Data: Disentangling Price and Quantity Effects

Panel A. Quantity

Variable	(1) $Quantity_{t+1}$	(2) $Quantity_{t+2}$	(3) $Quantity_{t+3}$	(4) $Quantity_{t+4}$
GE_t^{US}	0.065	0.041	0.246***	0.249***
	(0.65)	(0.67)	(3.77)	(3.56)
MU_t^{US}	**-0.045***	**-0.043**	**-0.023**	**0.005**
	(-2.21)	**(-1.79)**	**(-0.97)**	**(0.20)**
A_t	0.024	0.024	0.023	0.017
	(1.16)	(1.14)	(1.00)	(0.77)
D_t	-0.882	-3.041	-1.665	-0.063
	(-0.33)	(-0.89)	(-0.34)	(-0.01)
DD_t	-0.034**	-0.030*	-0.024	-0.023
	(-2.57)	(-2.17)	(-1.35)	(-1.06)
$NegE_t$	-0.021	-0.028*	-0.020	-0.018
	(-1.42)	(-2.25)	(-0.97)	(-0.88)
AC_t	0.041	0.049	0.086	0.116
	(1.08)	(0.75)	(0.98)	(1.07)
Observations	612	604	596	587
Adjusted R-squared	0.054	0.054	0.071	0.057
Fixed Effects	Firm	Firm	Firm	Firm

Panel B. Price

Variable	(1) $Price_{t+1}$	(2) $Price_{t+2}$	(3) $Price_{t+3}$	(4) $Price_{t+4}$
GE_t^{US}	0.013	0.161	0.128	0.193
	(0.16)	(1.85)	(1.07)	(1.85)
MU_t^{US}	**-0.045***	**-0.037**	**-0.028**	**0.002**
	(-1.99)	**(-1.72)**	**(-1.47)**	**(0.13)**
A_t	0.011	0.010	0.015	-0.008
	(0.94)	(0.97)	(1.07)	(-0.95)
D_t	1.410	-3.066	-12.333**	-18.291***
	(0.17)	(-0.57)	(-2.83)	(-5.02)
DD_t	-0.041***	-0.039***	-0.048***	-0.036***
	(-4.89)	(-3.83)	(-3.86)	(-4.88)
$NegE_t$	-0.002	0.015*	0.007	0.019
	(-0.20)	(2.15)	(0.55)	(1.31)
AC_t	-0.093	-0.119	-0.127	-0.070
	(-1.22)	(-1.31)	(-1.19)	(-0.91)
Observations	601	595	587	579
Adjusted R-squared	0.006	0.016	0.019	0.026
Fixed Effects	Firm	Firm	Firm	Firm

Table 24 Panel A (B) presents the results of regressing quantity (price) 1, 2, 3, and 4 quarters ahead on controls and macroeconomic growth expectations on controls and macroeconomic growth expectations (GE^{US}) and uncertainty (MU^{US}). Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

3.4.18 Sample Selection

Table 3.26 presents my sample selection. I lose 1.97% (= 16,809/851,634) of my sample observations because of missing costs of goods sold, which is small relative to the number of observations I lose because of missing revenues (52,454) or missing accruals (243,915).

Table 25. Sample Selection

Panel A. Sample Selection

Compustat Quarterly observations 1985 - 2018	851,634		
Rev_{t+1} missing	52,454	799,180	
$COGS_{t+1}$ missing	16,809	782,371	
OX_{t+1} missing	12,221	770,150	
NOX_{t+1} missing	72	770,078	
ACC_t missing	243,915	526,163	Final sample

Panel B. Observations with Missing Cost of Goods Sold Industry Analysis

	Observations without COGS		Full Sample		
Industry	Frequency	%	Frequency	%	Difference in %
Agriculture	74	0.44	1,631	0.31	0.13
Food Products	365	2.17	7,579	1.44	0.73
Candy & Soda	36	0.21	1,146	0.22	-0.01
Beer & Liquor	32	0.19	1,524	0.29	-0.10
Tobacco Products	21	0.12	458	0.09	0.03
Recreation	156	0.93	3,701	0.7	0.23
Entertainment	369	2.2	8,761	1.67	0.53
Printing and Publishing	123	0.73	3,208	0.61	0.12
Consumer Goods	347	2.06	7,192	1.37	0.69
Apparel	237	1.41	6,054	1.15	0.26
Healthcare	327	1.95	9,453	1.8	0.15
Medical Equipment	558	3.32	17,327	3.29	0.03
Pharmaceutical Products	665	3.96	35,255	6.7	-2.74
Chemicals	322	1.92	9,594	1.82	0.10
Rubber and Plastic Products	250	1.49	4,318	0.82	0.67
Textiles	134	0.8	2,051	0.39	0.41
Construction Materials	490	2.92	8,870	1.69	1.23
Construction	325	1.93	5,757	1.09	0.84
Steel Works	178	1.06	5,593	1.06	0.00
Fabricated Products	70	0.42	1,441	0.27	0.15
Machinery	594	3.53	15,100	2.87	0.66
Electrical Equipment	259	1.54	7,439	1.41	0.13
Automobiles and Trucks	326	1.94	6,965	1.32	0.62
Aircraft	104	0.62	2,309	0.44	0.18
Shipbuilding, Railroad Equipment	31	0.18	946	0.18	0.00
Defense	38	0.23	856	0.16	0.07
Precious Metals	116	0.69	2,321	0.44	0.25
Non-Metallic & Indust. Metal Mining	67	0.4	2,717	0.52	-0.12
Coal	17	0.1	995	0.19	-0.09
Petroleum and Natural Gas	486	2.89	21,135	4.02	-1.13
Utilities	207	1.23	16,652	3.16	-1.93
Communication	502	2.99	16,056	3.05	-0.06
Personal Services	218	1.3	5,447	1.04	0.26
Business Services	2,184	12.99	60,916	11.58	1.41
Computers	694	4.13	17,646	3.35	0.78
Electronic Equipment	843	5.02	27,116	5.15	-0.13
Measuring and Control Equipment	350	2.08	9,888	1.88	0.20
Business Supplies	179	1.06	4,859	0.92	0.14
Shipping Containers	44	0.26	1,399	0.27	-0.01
Transportation	231	1.37	11,485	2.18	-0.81
Wholesale	564	3.36	17,464	3.32	0.04
Retail	678	4.03	23,561	4.48	-0.45
Restaurants, Hotels, Motels	356	2.12	9,760	1.85	0.27
Banking	549	3.27	33,396	6.35	-3.08
Insurance	516	3.07	14,629	2.78	0.29
Real Estate	270	1.61	6,090	1.16	0.45
Trading	648	3.86	31,799	6.04	-2.18
Almost Nothing	659	3.92	16,304	3.1	0.82
Total	16,809	100	526,163	100	

Table 25 Panel A presents my sample selection. Panel B compares the Fama and French 48 industry composition for observations with missing cost of goods sold and the full final sample.

Further, I test whether the cost of goods sold filter systematically excludes certain industries. Online Appendix Table A.13 shows the Fama and French 48 industry composition for observations with missing cost of goods sold and the full final sample. For both sample, I compute the percentage deriving from each industry. Next, I compare these percentages between the two samples and find that the difference is smaller than 5% for each industry. The three largest differences derive from Banking (3.08%), Pharmaceutical Products (2.74), and Trading (2.18%). All other differences are smaller than 2%. Thus, while observations in some industries are relatively more likely to have missing values for cost of goods sold, the differences are not large and do not concentrate in a small number of industries.

3.4.19 Constant Sample Tests

Table 3.27 replicates Table 3.4 for a constant sample to ensure that my results are not driven by changes in sample composition. My inferences remain unchanged.

Table 27. US Quarterly Data: Constant Sample: Macroeconomic Uncertainty and Disaggregated Firm Outcomes

Panel A. One Quarter Ahead

Variable	(1) Rev_{t+1}	(2) GP_{t+1}	(3) OP_{t+1}	(4) E_{t+1}	(5) $COGS_{t+1}$	(6) OX_{t+1}	(7) NOX_{t+1}
GE_t^{US}	0.022*	0.009***	0.004	0.011	0.012	0.005	-0.006
	(1.72)	(2.59)	(0.71)	(1.17)	(1.08)	(1.14)	(-1.38)
MU_t^{US}	**-0.019*** **	**-0.004*** **	**0.004*** **	**0.005*** **	**-0.015*** **	**-0.008*** **	**-0.000**
	(-7.17)	**(-5.29)**	**(5.28)**	**(4.34)**	**(-6.99)**	**(-7.66)**	**(-0.70)**
A_t	-0.016***	-0.007***	-0.004***	-0.004***	-0.010***	-0.004***	-0.000
	(-23.40)	(-18.97)	(-9.56)	(-5.98)	(-17.25)	(-9.19)	(-1.41)
D_t	0.167*	0.042	0.019	-0.125	0.115*	0.018	0.125***
	(1.89)	(0.85)	(0.40)	(-1.61)	(1.66)	(0.50)	(3.01)
DD_t	-0.002*	-0.002***	-0.003***	-0.005***	0.000	0.001**	0.001***
	(-1.90)	(-4.89)	(-7.56)	(-8.15)	(0.46)	(2.01)	(3.54)
$NegE_t$	-0.030***	-0.015***	-0.010***	-0.012***	-0.016***	-0.005***	0.002***
	(-27.84)	(-26.40)	(-17.38)	(-15.67)	(-19.93)	(-12.21)	(4.49)
AC_t	0.010***	0.014***	0.041***	0.036***	-0.005	-0.027***	-0.003
	(2.90)	(4.78)	(9.29)	(4.70)	(-1.27)	(-6.28)	(-0.74)
Observations	388,066	388,066	388,066	388,066	388,066	388,066	388,066
Adjusted R-squared	0.173	0.089	0.060	0.027	0.135	0.095	-0.002
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel B. Two Quarters Ahead

Variable	(1) Rev_{t+2}	(2) GP_{t+2}	(3) OP_{t+2}	(4) E_{t+2}	(5) $COGS_{t+2}$	(6) OX_{t+2}	(7) NOX_{t+2}
GE_t^{US}	0.041***	0.014***	0.003	0.012	0.028***	0.011***	-0.009**
	(3.59)	(3.83)	(0.57)	(1.24)	(2.86)	(2.74)	(-2.03)
MU_t^{US}	**-0.015*** **	**-0.002*** **	**0.004*** **	**0.006*** **	**-0.013*** **	**-0.006*** **	**-0.001*** **
	(-6.05)	**(-3.34)**	**(5.78)**	**(4.87)**	**(-6.28)**	**(-6.76)**	**(-2.65)**
A_t	-0.019***	-0.008***	-0.003***	-0.003***	-0.012***	-0.005***	-0.001**
	(-26.25)	(-19.86)	(-7.30)	(-4.10)	(-21.17)	(-13.08)	(-2.21)
D_t	-0.031	-0.020	-0.025	-0.180**	-0.018	0.005	0.110***
	(-0.38)	(-0.42)	(-0.51)	(-2.58)	(-0.29)	(0.16)	(3.15)
DD_t	-0.002	-0.002***	-0.003***	-0.004***	0.001	0.001**	0.001***
	(-1.44)	(-4.35)	(-7.10)	(-7.07)	(0.81)	(2.03)	(2.68)
$NegE_t$	-0.020***	-0.007***	-0.001	-0.003***	-0.013***	-0.006***	0.002***
	(-20.91)	(-13.67)	(-1.48)	(-4.40)	(-18.11)	(-14.56)	(4.84)
AC_t	0.005	0.001	0.001	-0.040***	0.005	-0.002	0.023***
	(1.61)	(0.29)	(0.34)	(-5.52)	(1.20)	(-0.45)	(6.60)
Observations	388,066	388,066	388,066	388,066	388,066	388,066	388,066
Adjusted R-squared	0.167	0.078	0.050	0.026	0.131	0.087	0.002
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel C. Three Quarters Ahead

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+3}	GP_{t+3}	OP_{t+3}	E_{t+3}	$COGS_{t+3}$	OX_{t+3}	NOX_{t+3}
GE_t^{US}	0.056***	0.016***	-0.002	0.000	0.041***	0.017***	-0.003
	(5.17)	(3.90)	(-0.53)	(0.03)	(5.03)	(4.92)	(-0.76)
MU_t^{US}	**-0.010*** **	**-0.001**	**0.004*** **	**0.007*** **	**-0.010*** **	**-0.004*** **	**-0.003*** **
	(-4.58)	**(-0.75)**	**(5.56)**	**(4.43)**	**(-5.34)**	**(-5.01)**	**(-3.10)**
A_t	-0.022***	-0.008***	-0.002***	-0.001**	-0.015***	-0.007***	-0.001***
	(-26.74)	(-20.24)	(-4.35)	(-2.31)	(-23.25)	(-15.92)	(-2.64)
D_t	-0.111	-0.075	-0.051	-0.168**	-0.035	-0.017	0.082***
	(-1.23)	(-1.27)	(-0.86)	(-2.18)	(-0.59)	(-0.54)	(2.69)
DD_t	-0.001	-0.002***	-0.003***	-0.004***	0.001	0.001***	0.001***
	(-1.25)	(-3.73)	(-6.70)	(-6.60)	(0.81)	(2.67)	(2.59)
$NegE_t$	-0.009***	0.001**	0.009***	0.007***	-0.010***	-0.007***	0.001**
	(-10.19)	(2.13)	(15.15)	(7.77)	(-14.41)	(-16.97)	(2.25)
AC_t	0.004	-0.007**	-0.026***	-0.098***	0.014***	0.017***	0.045***
	(1.41)	(-2.40)	(-6.53)	(-13.80)	(3.68)	(4.44)	(13.56)
Observations	388,066	388,066	388,066	388,066	388,066	388,066	388,066
Adjusted R-squared	0.164	0.073	0.052	0.035	0.129	0.087	0.009
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel D. Four Quarters Ahead

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+4}	GP_{t+4}	OP_{t+4}	E_{t+4}	$COGS_{t+4}$	OX_{t+4}	NOX_{t+4}
GE_t^{US}	0.052***	0.011***	-0.007**	-0.013*	0.042***	0.018***	0.004
	(4.54)	(2.64)	(-2.04)	(-1.76)	(4.95)	(4.43)	(0.99)
MU_t^{US}	**-0.004***	**0.000**	**0.002*** **	**0.004*** **	**-0.004** **	**-0.002***	**-0.002***
	(-1.70)	**(0.61)**	**(2.85)**	**(2.70)**	**(-2.45)**	**(-1.67)**	**(-1.83)**
A_t	-0.024***	-0.009***	-0.000	0.000	-0.017***	-0.008***	-0.001***
	(-27.03)	(-19.71)	(-0.90)	(0.13)	(-25.36)	(-17.65)	(-2.81)
D_t	-0.080	-0.033	0.015	0.004	-0.047	-0.042	-0.009
	(-0.92)	(-0.68)	(0.29)	(0.06)	(-0.71)	(-1.22)	(-0.29)
DD_t	-0.000	-0.000	-0.001***	-0.000	0.001	0.001**	-0.001***
	(-0.04)	(-0.79)	(-2.94)	(-0.67)	(0.70)	(2.14)	(-2.82)
$NegE_t$	0.009***	0.016***	0.026***	0.048***	-0.007***	-0.010***	-0.017***
	(9.07)	(26.69)	(33.11)	(36.51)	(-9.28)	(-19.91)	(-20.75)
AC_t	-0.002	-0.019***	-0.058***	-0.186***	0.022***	0.036***	0.078***
	(-0.77)	(-5.33)	(-13.40)	(-23.71)	(4.94)	(8.82)	(20.64)
Observations	388,066	388,066	388,066	388,066	388,066	388,066	388,066
Adjusted R-squared	0.165	0.085	0.077	0.090	0.133	0.099	0.033
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel E. Five Quarters Ahead

Variable	(1) Rev_{t+5}	(2) GP_{t+5}	(3) OP_{t+5}	(4) E_{t+5}	(5) $COGS_{t+5}$	(6) OX_{t+5}	(7) NOX_{t+5}
GE_t^{US}	0.033***	0.001	-0.015***	-0.023***	0.033***	0.016***	0.006**
	(2.75)	(0.25)	(-4.74)	(-3.80)	(3.65)	(3.96)	(2.16)
MU_t^{US}	**0.003**	**0.002****	**0.001***	**0.004*****	**0.001**	**0.000**	**-0.002****
	(1.21)	**(1.99)**	**(1.86)**	**(2.61)**	**(0.68)**	**(0.48)**	**(-2.56)**
A_t	-0.025***	-0.008***	0.001**	0.003***	-0.018***	-0.009***	-0.002***
	(-26.79)	(-18.11)	(2.22)	(4.34)	(-25.19)	(-18.23)	(-6.01)
D_t	-0.121	-0.084*	-0.068	-0.080	-0.046	-0.009	-0.015
	(-1.45)	(-1.67)	(-1.26)	(-1.22)	(-0.72)	(-0.28)	(-0.43)
DD_t	-0.001	-0.001*	-0.002***	-0.002***	0.000	0.001**	0.000
	(-0.79)	(-1.78)	(-4.49)	(-4.19)	(0.32)	(2.57)	(1.34)
$NegE_t$	0.001	0.007***	0.015***	0.019***	-0.007***	-0.008***	-0.003***
	(0.73)	(12.72)	(20.73)	(17.93)	(-8.53)	(-17.06)	(-6.63)
AC_t	0.001	-0.001	-0.016***	-0.026***	0.004	0.014***	0.005
	(0.48)	(-0.23)	(-4.38)	(-4.55)	(0.95)	(3.96)	(1.63)
Observations	388,066	388,066	388,066	388,066	388,066	388,066	388,066
Adjusted R-squared	0.159	0.075	0.058	0.031	0.132	0.097	-0.001
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel F. Six Quarters Ahead

Variable	(1) Rev_{t+6}	(2) GP_{t+6}	(3) OP_{t+6}	(4) E_{t+6}	(5) $COGS_{t+6}$	(6) OX_{t+6}	(7) NOX_{t+6}
GE_t^{US}	0.016	-0.001	-0.008**	-0.015***	0.017*	0.008*	0.006**
	(1.33)	(-0.16)	(-2.46)	(-2.66)	(1.85)	(1.86)	(2.36)
MU_t^{US}	**0.006****	**0.002****	**0.001**	**0.002**	**0.004****	**0.002**	**-0.001***
	(2.33)	**(2.37)**	**(0.61)**	**(1.34)**	**(2.08)**	**(1.58)**	**(-1.91)**
A_t	-0.024***	-0.007***	0.002***	0.004***	-0.018***	-0.009***	-0.002***
	(-26.29)	(-16.72)	(3.51)	(5.53)	(-24.74)	(-18.45)	(-6.41)
D_t	-0.134*	-0.118**	-0.091*	-0.090	-0.030	-0.027	-0.010
	(-1.77)	(-2.46)	(-1.87)	(-1.46)	(-0.53)	(-0.83)	(-0.31)
DD_t	-0.001	-0.001***	-0.002***	-0.002***	0.000	0.001**	0.000
	(-1.31)	(-2.69)	(-5.31)	(-4.46)	(0.14)	(2.23)	(1.06)
$NegE_t$	0.000	0.006***	0.012***	0.015***	-0.005***	-0.006***	-0.002***
	(0.55)	(11.23)	(18.56)	(15.58)	(-7.24)	(-15.36)	(-6.63)
AC_t	-0.000	-0.004	-0.013***	-0.020***	0.004	0.008**	0.004*
	(-0.06)	(-1.40)	(-3.44)	(-3.43)	(1.31)	(2.31)	(1.75)
Observations	388,066	388,066	388,066	388,066	388,066	388,066	388,066
Adjusted R-squared	0.154	0.069	0.056	0.030	0.125	0.090	0.002
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel G. Seven Quarters Ahead

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+7}	GP_{t+7}	OP_{t+7}	E_{t+7}	$COGS_{t+7}$	OX_{t+7}	NOX_{t+7}
GE_t^{US}	0.003	-0.007**	-0.011***	-0.021***	0.010	0.003	0.008**
	(0.24)	(-2.19)	(-2.88)	(-2.84)	(1.14)	(0.77)	(2.29)
MU_t^{US}	**0.009*** **	**0.002** **	**-0.000**	**0.001**	**0.007*** **	**0.003** **	**-0.001**
	(3.21)	**(2.50)**	**(-0.17)**	**(0.61)**	**(3.16)**	**(2.52)**	**(-1.31)**
A_t	-0.023***	-0.006***	0.002***	0.005***	-0.017***	-0.009***	-0.002***
	(-25.05)	(-15.99)	(4.81)	(7.19)	(-23.73)	(-18.65)	(-7.65)
D_t	-0.140*	-0.111**	-0.118**	-0.138*	-0.052	0.001	-0.008
	(-1.74)	(-2.12)	(-2.17)	(-1.94)	(-0.92)	(0.02)	(-0.23)
DD_t	-0.002*	-0.001***	-0.002***	-0.003***	-0.000	0.001**	0.001**
	(-1.91)	(-2.86)	(-5.26)	(-4.67)	(-0.30)	(2.14)	(2.22)
$NegE_t$	0.001	0.005***	0.010***	0.013***	-0.004***	-0.005***	-0.002***
	(1.01)	(11.25)	(18.07)	(15.71)	(-5.74)	(-13.82)	(-6.49)
AC_t	-0.004	-0.006*	-0.007**	-0.014**	0.002	0.001	0.003
	(-1.37)	(-1.93)	(-1.99)	(-2.24)	(0.60)	(0.17)	(1.17)
Observations	388,066	388,066	388,066	388,066	388,066	388,066	388,066
Adjusted R-squared	0.150	0.067	0.056	0.030	0.121	0.089	0.005
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel H. Eight Quarters Ahead

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variable	Rev_{t+8}	GP_{t+8}	OP_{t+8}	E_{t+8}	$COGS_{t+8}$	OX_{t+8}	NOX_{t+8}
GE_t^{US}	-0.010	-0.010***	-0.010***	-0.016**	-0.000	0.000	0.004*
	(-0.97)	(-2.78)	(-2.89)	(-2.48)	(-0.02)	(0.09)	(1.68)
MU_t^{US}	**0.011*** **	**0.002** **	**-0.001**	**-0.001**	**0.009*** **	**0.003*** **	**-0.000**
	(3.73)	**(2.02)**	**(-1.13)**	**(-0.41)**	**(4.07)**	**(3.16)**	**(-0.36)**
A_t	-0.022***	-0.006***	0.002***	0.004***	-0.017***	-0.008***	-0.002***
	(-24.67)	(-15.62)	(4.59)	(6.43)	(-22.80)	(-18.32)	(-7.16)
D_t	-0.135*	-0.091*	-0.089*	-0.087	-0.054	-0.012	-0.001
	(-1.75)	(-1.95)	(-1.85)	(-1.31)	(-0.92)	(-0.37)	(-0.02)
DD_t	-0.002*	-0.001***	-0.002***	-0.003***	-0.000	0.001*	0.000
	(-1.78)	(-3.28)	(-5.43)	(-5.05)	(-0.19)	(1.92)	(1.15)
$NegE_t$	0.002***	0.004***	0.008***	0.010***	-0.002***	-0.004***	-0.002***
	(2.90)	(10.01)	(17.21)	(14.01)	(-3.03)	(-11.14)	(-5.60)
AC_t	-0.005	-0.006*	-0.012***	-0.019***	0.002	0.002	0.006**
	(-1.55)	(-1.76)	(-3.09)	(-2.88)	(0.52)	(0.54)	(2.02)
Observations	388,066	388,066	388,066	388,066	388,066	388,066	388,066
Adjusted R-squared	0.146	0.069	0.055	0.030	0.121	0.092	0.002
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Table 27 Panels A to H present the results of regressing seasonally adjusted 1- to 8-quarter-ahead revenues (Rev), gross profits (GP), operating profits (OP), earnings (E), cost of goods sold (COGS), operating expenses (OX), and non-operating expenses (NOX) on controls and macroeconomic growth expectations (GE^{US}) and uncertainty (MU^{US}) for a constant sample. Variable definitions are in Appendix A. Standard errors are clustered by firm and quarter. Robust t-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10% level.

4

Conclusion

This paper examines the effects of macroeconomic uncertainty on consumers and managers' decision making and the implications for corporate profitability. In response to macroeconomic uncertainty, consumers reduce purchases and managers reduce investment. As a result, firms' revenues and expenses drop. The net effect on profitability is positive: On average, the cuts in expenses exceed the fall in revenues. The results last up to five quarters in the future, hold internationally, vary with cross-country differences in employment protection legislation and long-term orientation, and are robust to instrumental variable estimation employing exogenous variation arising from disaster shocks.

Appendix A

Variable Definitions

Variable	Source	Definition
A	Compustat Global	Log total assets in USD: log(AT)
AC	Compustat Global	Change in accruals scaled by average total assets: $(\Delta\text{IB} - \Delta\text{OANCF})/\overline{\text{AT}}$
COGS	Compustat Global	Change in cost of goods sold scaled by average total assets: $\Delta\text{COGS}/\overline{\text{AT}}$
D	Compustat Global	Change in dividends scaled by average total assets: $\Delta\text{DVT}/\overline{\text{AT}}$
DD	Compustat Global	Indicator that the company pays a dividend
E	Compustat Global	Change in earnings scaled by average total assets: $\Delta\text{IB}/\overline{\text{AT}}$
EPL	OECD	OECD protection of permanent workers against individual and collective dismissals index
GP	Compustat Global	Change in gross profit scaled by average total assets: $(\Delta\text{SALE} - \Delta\text{COGS})/\overline{\text{AT}}$
High EPL	OECD	Indicator that the company's country's score on the protection of permanent workers against individual and collective dismissals index is above sample median
High LTO	Hofstede et al. (2010)	Indicator that the company's country's score on long-term orientation is above sample median
LTO	Hofstede et al. (2010)	Long-term orientation score
Natural Disaster	Baker and Bloom (2013)	Indicator that a natural disaster occurred during the country-year weighted by the increase in Google News Archive citations of the name of the country the natural disaster occurred in
NegE	Compustat Global	Indicator that the company is making a loss
NOX	Compustat Global	Change in net non-operating expenses scaled by average total assets: $(\Delta\text{OP} - \Delta\text{E})/\overline{\text{AT}}$
OP	Compustat Global	Change in operating profit scaled by average total assets: $\Delta\text{OIADP}/\overline{\text{AT}}$
OX	Compustat Global	Change in net operating expenses scaled by average total assets: $(\Delta\text{GP} - \Delta\text{OP})/\overline{\text{AT}}$
Political Shock	Baker and Bloom (2013)	Indicator that a political shock occurred within the country-year weighted by the increase in Google News Archive citations of the name of the country the political shock occurred in
Rev	Compustat Global	Change in revenues scaled by average total assets: $\Delta\text{SALE}/\overline{\text{AT}}$
Revolution	Baker and Bloom (2013)	Indicator that a revolution occurred within the country-year weighted by the increase in Google News Archive citations of the name of the country the revolution occurred in
Terror Attack	Baker and Bloom (2013)	Indicator that a terror attack occurred within the country-year weighted by the increase in Google News Archive citations of the name of the country the terror attack occurred in
GE^{US}	CRSP	Aggregate US stock market index return over the quarter
MU^{US}	Baker et al. (2016)	US economic policy uncertainty index averaged over the quarter and scaled by 100
GE^{g}	MSCI	Aggregate world stock market index return over the quarter
MU^{g}	Baker et al. (2016)	Purchasing power parity adjusted global economic policy uncertainty index averaged over the year and scaled by 100
GE^{BB}	Baker and Bloom (2013)	Annual return of the firm's country's major stock market index
MU^{BB}	Baker and Bloom (2013)	Log quarterly daily stock return standard deviation of the firm's country's major stock market index averaged over the last four quarters
X	Compustat Global	Change in net expenses scaled by average total assets: $(\Delta\text{SALE} - \Delta\text{E})/\overline{\text{AT}}$

Δ denotes change relative to the same quarter in the last fiscal year for quarterly data and change relative to the last fiscal year for annual data. $\bar{}$ denotes average over period start and end value.

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