Corporate Payout Under Uncertainty in Economic Policies

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Abstract

Using a sample of all public firms in the U.S. between years 1985 and 2015, I examine the relation between firm behavior in payout policy under changes in the level of economic policy uncertainty; specifically dividends and open market share repurchases. I use the EPU index and its components developed by Baker et al. (2016). After controlling for main payout policy indicators obtained from the literature, along with year, season, and industry dummies, I find payout programs tend to behave differently, depending on which part of the uncertainty rises. A persistent negative relationship exists between the level of uncertainty in government spending (GSU) and a firm's average level of total payout, dividend amount, and share repurchase amount.

JEL classification:

Keywords: Payout policy, dividends, share repurchases, economic uncertainty.

1 Introduction

Governments often make decisions that affect the environment in which businesses operate. The uncertainty of when, what, and how these policies are implemented can influence corporate decisions, and in some circumstances delay them ; "*In their discussion of their economic forecasts, participants emphasized their considerable uncertainty about the timing, size, and composition of any future fiscal and other economic policy initiatives...* "[1]. Thus, the study of economic policy uncertainty has caught attentions from academics and policy makers alike. Recent work examines the effects of higher uncertainty in economic policies on investment levels and growth (Gulen and Ion (2015); Baker et al. (2016)), cost of capital and innovation activities (Xu (2017)), and managerial behavior (Stein and Wang (2016)). Yet, this area of research is still at its early stage.

Using a sample of all public firms in the U.S. between years 1985 and 2015, I examine the relation between payout policy, specifically dividends and open market share repurchases, and changes in the levels of economic policy uncertainty. Following the literature, I rely on the economic policy uncertainty (EPU) index developed by Baker et al. (2016). The index is comprised of four unique factors; a news-source economic uncertainty, uncertainty about future changes in the tax code, dispersion in the forecasts of the future consumer price index (CPI), and dispersion in the forecasts of state and federal government spending. By examining the main index and its components separately, one can have a comprehensive view on what specific uncertainties trigger changes in corporate decisions.

The payout policy response to changes in the level of uncertainty can go either way. On one hand, higher levels of uncertainty can increase the amount of free cash flows

[1]From the minutes of the Federal Open Market Committee meeting in December 2016.

at the firm level due to fewer positive NPV projects available in the market. With such higher information asymmetries during abnormal levels of uncertainty, shareholders demand higher payouts in order to reduce agency issues and reduce investments in value-destroying projects, triggering an increase in either dividends or share repurchases. On the other hand, during periods of elevated uncertainty, the external cost of capital rises (Xu (2017)), initiating the need to use a larger share of internally generated funds to fund current and future projects. As a result, an empirical test can provide insight as to whether policy makers should strive for a clear road map of their future policies, and any changes should be taken gradually.

After controlling for main payout policy indicators obtained from the literature, along with year, season, and industry dummies, I find payout programs tend to behave differently, depending on which part of the uncertainty index rises. A persistent negative relationship exists between the level of uncertainty in government spending (GSU) and a firm's average level of total payout, dividend amount, and share repurchase amount. On average, a one standard deviation increase in the government spending uncertainty index is associated with a reduction of 0.83 basis points in both the total payout ratio and repurchase ratio; this decrease is from a sample average of roughly 1%. Furthermore, this relation is even stronger for firms that face capital constraints. On the other hand, the relation between total payout, dividends, or share repurchases, are positive, and somewhat not persistent, with the other three components of the EPU index; News-based economic uncertainty, tax code uncertainty, and uncertainty of the future consumer price index (CPI). Thus, from the findings of this study, one can conclude that a rise in the uncertainty of government spending alone may lead managers to withhold some of the excess funds (Free cash flow) when fewer positive NPV projects are available in the market. However, it is not clear whether a shift in

the payout policy persists for a longer period.

The organization of this paper is as follows. Section 2 reviews the related literature. Section 3 develops the hypotheses. Section 4 describes the data used in this study, Section 5 discusses the analysis, and section 6 concludes.

2 Literature Review

One of the literature's theoretical cornerstones in rationing corporate cash disbursements is Jensen's free cash flow hypothesis; Jensen (1986). According to his rationale, managers engage in a payout policy in order to reduce the excess amount of cash at managements disposal, implying that a firm is more likely to engage in a payout policy if it has been experiencing reductions in growth opportunities. Otherwise, managers will use the excess cash in either value destroying projects or empire building, reducing shareholder value. Payout policy models, such as Easterbrook (1984); Grossman and Hart (1982), illustrate how the amount of cash returned to shareholders will ultimately lead to reductions in both agency issues and shareholder expropriation.

However, methods in distributing the excess funds can be either through dividends or open market share repurchases, since both act as substitutes Grullon and Michaely (2002), albeit managers may prefer one over the other depending on whether the excess cash is projected to be permanent. Thus, unlike a dividend policy where shareholders expect the stream of cash flow to be steadily increasing over time, an open market share buyback is an unexpected initiation by the manager, and thus, managers of firms with high variance in their operating cash flows tend to prefer the latter over the former. However, Brav et al. (2005) survey 384 financial executives regarding firm payout policies, and they find, among other things, that a share buyback program is perceived to be less effective at resolving agency conflicts, and hence, a firm's level of corporate

governance plays a significant role in determining which method of payout a manager will ultimately choose. As a result, examining the two methods of payout separately and collectively during periods of elevated agency issues can provide an in-depth view to whether they perceive the levels of uncertainty to continue in the future. This is especially important during periods of high uncertainty since according to Miller and Rock (1985) rationale, in periods of high uncertainty, such as uncertainties in future economic policies, the level of information asymmetry is heighten. Such a condition creates a need for even a higher signaling cost from managers, i.e. levels of dividends that are higher than under the full-information optimum, and thus, an inefficiency in investment policy.

Uncertainty, specifically economic policy uncertainty, has received attention in recent research due to its economic implications on corporate decisions. The change in uncertainty translates to changes in the minds of consumers, managers, and policy makers about possible future states. Bloom (2014) defines economic uncertainty as a mixture of risk and uncertainty in the stock market, and the country's future economic performance. As a result, we observe an increase in the level of uncertainty during recessions, and a decrease during economic booms. This is due to the fact that uncertainty is triggered by shocks of bad news, which amplifies recessions further, leading to slow economic growth. When the level of uncertainty regarding economic polices rise, many managers reevaluate their corporate decisions, or withhold these decisions until the uncertainty declines, since these policies may alter the firm's cost of capital and return on their investments. Theoretical literature argues that it is optimal for managers facing elevated uncertainties to postpone the investment decision until these levels return to normal, McDonald and Siegel (1986); Dixit et al. (1996). In fact, it is even more optimal to postpone irreversible investments since they carry high reversibility costs, and a rise in the level of uncertainty changes the optimal timing of

investments due to the real-option feature of investment, Bernanke (1983).

One of the main challenges in this strain of research is to find an appropriate measure for economic policy uncertainty. An increasingly common, although recent, proxy is provided by Baker et al. (2016). The authors develop an index for economic policy uncertainty (EPU) based on four components. The first, and most heavily weighted, component, counts the number of articles in the top ten leading newspapers containing the keywords "Uncertainty", "Economy", and one or more of "Congress, deficit, Federal Reserve, legislation, regulation, White House", then normalizes by the total volume of news articles. The second component of the index captures the uncertainty in future changes in federal tax codes obtained from the Congressional Budget Office reports. The third and fourth components of the EPU index draw from the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters; the third factor captures the dispersion between individual forecasters' predictions concerning future levels of the Consumer Price Index (CPI), and the fourth captures the dispersion between individual forecasters' prediction regarding future government (Federal, state, and local) spending. Baker et al. (2016) find a positive and significant relation between the proposed index and stock price volatility, as well as a negative relation with investment and employment in sectors that are heavily reliant on government policies, such as healthcare and defense, supporting McDonald and Siegel (1986); Dixit et al. (1996); Bernanke (1983) conclusions. Gulen and Ion (2015) document a strong negative relationship between capital investment and the level of uncertainty[2] associated with future policy outcome. The relation is not constant across firms; it is stronger for firms with higher degrees of investment irreversibility and for firms that are more dependent on government spending. These conclusions support other findings in the empirical literature; Jens (2017). Stein and Wang (2016) documents a positive rela-

[2]Using the index developed by Baker et al. (2016).

tion between earnings management and uncertainty. By observing lower stock price responses to earnings surprises when uncertainty is high, they argue, during periods of high uncertainty, performance is more likely to be attributed to luck rather than skill and effort. Thus, creating incentives for managers to shift earnings toward lower uncertainty periods. With the assumption of investor rationality, this leads to an amplification of agency conflicts during higher economic uncertainty.

In addition to corporate investment policy, economic uncertainties commands an equity risk premium as well, due to undiversifiable political risk (Pastor and Veronesi (2012); Pástor and Veronesi (2013)), making equity financing more costly during periods of elevated uncertainty. However, similar to any other risk factor, firms' exposure to political risk varies. To some, the cost of equity becomes high enough to make positive NPV projects negative. In addition, economic uncertainty can affect the cost of debt as well through its influence on firms' default risk (Arnott et al. (1994)). As Xu (2017) demonstrates, economic policy uncertainty affects a firm's weighted average cost of capital (WACC), which in turn affects investment policies; Gilchrist and Zakrajsek (2007); Abel and Blanchard (1986). Thus, a higher cost of capital may create financing frictions, where firms rely more on internal funds rather than external financing (Myers and Majluf (1984); Kaplan and Zingales (1995)). Since government expenditure has become very important in recent decades, increasing from 25% of U.S. GDP during the late 30s to almost 40% of GDP in the late 2000s [3], some sectors in the economy rely heavily on government expenditures. Thus, uncertainty regarding government spending may play an even bigger role in corporate policy, affecting future cash flows of some firms, and thus leading to a higher political risk premium. With the rise in the cost of capital, managers may prefer to raise funds internally by reducing their payout to shareholders.

[3]The estimates regarding government expenditures are obtained from the website: https://www.usgovernmentspending.com

3 Hypothesis Development

In light of previous findings in the literature, the free cash flow hypothesis described by Jensen (1986) concludes that excess funds are the main source of agency conflict between managers and shareholders. Since in periods of high economic policy uncertainty, investments decline due to low investment opportunities (Gulen and Ion (2015); Baker et al. (2016)), and free cash flows rise, there may be a higher demand from shareholders for cash disbursement, i.e. larger payouts. Furthermore, periods of elevated uncertainty amplify information asymmetry between outsiders and insiders, and thus, as Miller and Rock (1985) conclude, a higher signaling cost through larger payouts may be demanded by investors. Together, both views suggest a positive association between uncertainty and payouts.

On the other hand, during periods of high economic uncertainty, cost of external financing soars due to higher political risk premiums; Pastor and Veronesi (2012); Pástor and Veronesi (2013); Xu (2017), and therefore, encouraging firms to prefer internally generated funds over external financing when needed; Xu (2017). In addition, for firm's that have a higher risk loading on political risk premiums, the preference may be of longer term.

Taking both views into consideration, the direction of the relationship between uncertainty and payout policy can go either way, and an empirical test may be of value. Thus, in this paper I test the following hypothesis:

Hypothesis *A* : A change in the level of U.S. economic policy uncertainty is associated with a firm's payout policy, and the direction of the association can go either way.

In addition, it is worthwhile to examine whether the relationship between the level

of economic policy uncertainty and a firm's payout policy is stronger for firms that are capital constrained, since those firms may face a more severe rise in the cost of external financing:

Hypothesis *B* : A change in the level of U.S. economic policy uncertainty is associated with a stronger change in a firm's payout policy if it is capital constrained.

4 Sample Construction

The sample for my empirical analysis comes from several sources. First, firm fundamentals are obtained from Compustat Annual Filings for all U.S. public firms, excluding utilities and financial (SIC codes 6000-6999 and 4900-4949) since these firms tend to be under regulatory restrictions when it comes to payout policy. Second, economic uncertainty measures are obtained from Baker et al. (2016)'s website[4]; it includes monthly values for the main index as well as its four components. Following Gulen and Ion (2015), I use the Michigan Consumer Confidence Index[5] (CCI) to proxy for the overall level of investment opportunities in the economy. Main payout measures are stock repurchases, dividends, and total payouts. Following Fenn and Liang (2001); Cuny et al. (2009); Chay and Suh (2009), a firm's level of stock repurchases is measured as the sum of common and preferred stock repurchases (data item # 115), adjusted for any decreases in preferred stock (data item # 56), divided by total revenue [6] (data item # 12). If the ratio is negative, then it is replaced with zero. Thus, $Repurchase =$

[4]The monthly values are available at `http//www.policyuncertainty.com`

[5]The index measures consumers' level of expectation regarding future economic conditions. The index can be obtained from `http://www.sca.isr.umich.edu`

[6]It is common in the literature to use market value as the denominator. However, economic uncertainty may have a strong, and yet cross sectionally inconsistent, correlation with a firm's market capital. Since several studies use sales as the denominator for robustness Cuny et al. (2009); Fenn and Liang (2001); Chay and Suh (2009), I choose to use revenue in constructing my main variables to reduce correlation concerns.

Min$[0, ([PRSTK_t + Min(0, PSTKRV_{t-1} - PSTKRV_t)]/REVT_t)]$. Dividends are measured as the ratio of total dividends on common stock (data item # 21) over total sales (data item # 12). If this value is missing, then dividends are measured by the ratio of total cash dividends on common stock (data item # 127) over total sales (data item # 12) [7]. If total dividends are reported as negative values [8], or reported as larger than total revenue, then the observation is dropped, since the behavior of such firms is abnormal and cannot be treated similar to firms with normal payout polices. Finally, total payout is the sum of dividend to sales ratio and repurchase to sales ratio. Table (1) reports the descriptive statistics for the three main payout variables, the mean (median) is similar to those reported in Chay and Suh (2009); Cuny et al. (2009); Fenn and Liang (2001); Grullon and Michaely (2002).

According to Chay and Suh (2009), cash flow uncertainty plays a significant role in payout policy; higher uncertainty leads to lower payout levels. Following the authors, I proxy for cash flow uncertainty by measuring the standard deviation of monthly stock returns; specifically, for the last 24 monthly returns[9]. Monthly stock returns are obtained from CRSP database. In addition, in order to measure a firm's degree of capital constraint, I use Hadlock and Pierce (2010)'s equation, i.e.:

$$Capital\ Unconstrained\ Score\ (CUS)^{10} = 0.737\ log(ATA) - 0.043\ log(ATA)^2 + 0.04\ Age$$

Where ATA is the 2015 inflation adjusted total book value of assets (data item # 6). Age is the firm's age starting from the first year where a firm's stock price is reported[11].

[7] 174 observations meet this condition.

[8] Only 11 observations meet this condition, and results are not altered when I include them.

[9] If a certain firm-year does not have all returns for the last 24 months in CRSP, I assume cash flow uncertainty is missing.

[10] Note the equation has coeffecients of oppisite signs. This is set so higher CUS translates to a less capitally constraint firm.

[11] Such a requirement is needed since COMPUSTAT database sometimes record financial statements prior to a firm's date of going public. Thus, I start measuring age after the first record of the firm's stock price, i.e. the variable PRCC_F.

Following Hadlock and Pierce (2010) in calculating the score, size is replaced with $log(\$4.5B)$ and age with thirty-seven years if actual values exceed these thresholds. As a result, a dummy variable is constructed that takes a value of 1 if the firm-year has a CUS value larger than the CUS average of that year, i.e. a firm is labeled capitally constrained if the indicator has a value of 0.

The variable of interest is the EPU index and its components, obtained from Baker et al. (2016). To measure each firm-year's exposure to the levels of economic uncertainties, I average the last six months of the EPU index (and the components separately) leading to the date of the financial statement[12]. For example, if a firm's financial statements were released on July 23rd, a firm's current level of uncertainty is the average of January to June monthly levels. A potential concern might be whether any cross sectional variation would exist among firms, since most have a December 31st fiscal date. By looking at table(1), there seems to be a good cross sectional variation to conduct the test; approximately equal to 63% of the overall standard deviation for the EPU index, and 82% of the overall standard deviation for uncertainty in government repurchases.

Other control variables include firm size (Size); the natural log of total book value of assets (data item # 6). Firms having total assets less than \$1M are dropped, since their natural log will be reported in negative values. Also other control variables become amplified, which can affect the distribution of the sample. And market to book ratio; $(Total\ Book\ Asset - Book\ Equity + Market\ Equity)/Total\ Book\ Asset$. Free cash flow (FCF) is measured as earnings before income, tax, and depreciation & amortization (data item # 13) minus capital expenditure (data item # 128) divided by total assets. Leverage is measured as the book value of total long-term debt[13] (data item # 9) divided by total assets. Finally, ROA is the ratio of earnings before income, tax, and

[12] All of the proceeding tests were conducted using past 12 months and results do not change.

[13] As long as it is reported as a positive value.

depreciation & amortization (data item # 13) over total assets.

Thus, to summarize the constraints applied to the sample of this study, a firm-year observation is included unless any of the followings apply:

- The industry code number, i.e. SIC code, is in the range of: (6000-6999, 4900-4949)
- Total book value of assets are less than $ 1 million.
- Total dividends on common stock (data item # 21) and total cash dividends on common stock (data item # 127) and the total common and preferred stock repurchases (item # 115) are all missing.
- Total dividends on common stock (data item # 21) is reported as a negative value, or exceeds total revenue of that year.
- If total revenue (data item # 12) or book value of common equity (data item # 11) is reported in negative value.

5 Analysis

5.1 Aggregate Payout

In order to have a full understanding of firm payout behavior, I first start with aggregate payouts across time. Measuring aggregate payout is straightforward; the sum of total payout, repurchases, or dividends for all firms reporting their financials at a given month. Figures 1 through 3 visualize how the mean of monthly aggregate payout changes with firms' exposure to uncertainty, i.e. how payouts move in response to the past six-month average of the index. As can be seen, the overall EPU (labeled as Index) moves somewhat in the same direction as the mean aggregate total payout,

repurchases, and dividends, but the response is inconsistent. In fact, one can see that the response is positive and quick for repurchases in the period between 2000 and 2005 but later the index drops while mean aggregate repurchase amount rises. The three components of the index (News-based economic policy uncertainty, uncertainty in tax code, and uncertainty in future CPI levels) are similar to the main index in terms of movement inconsistency[14]. However, the government spending uncertainty index (GSU), shown in figures 1 to 3 as (b), seems to have a somewhat consistent negative relation with mean aggregate total payout, repurchase amount, and dividends. This is evident in periods 1995-2000, 2008-2011[15], and 2013-2015.

From another perspective, figures 4 to 6 visualize the difference between the 90^{th} and 10^{th} percentile of firm payouts in a given month. A higher spread may indicate the variance of information asymmetry within the market. Since episodes of high overall uncertainty amplify information asymmetry between outsiders and insiders; i.e. firms with low information asymmetry become relatively lower and firms with high information asymmetry become relatively higher. Thus, leading firms with higher agency issues to signal with abnormally higher payouts, Miller and Rock (1985); Jensen (1986); Easterbrook (1984). As can be seen from the figures, similar to aggregate mean payouts, the main index and the other three components are not consistent in their association with payout dispersion. On the other hand, the GSU index seem to have a consistently positive association with payout dispersion, more strongly for repurchase amount.

Finally, table (2) reports a basic OLS regressing total payout, and its components separately, on either the main EPU index or GSU index. Results are negative and significant for total payout and repurchases, using aggregate mean or dispersion, when GSU index is the right-hand-side variable. In economic terms; a one standard devia-

[14]Charts of the other three components are not reported in this document, but they are available upon request.

[15]Albeit this is a special period due to the financial crisis.

tion increase in the GSU index is associated with roughly a 9.62 basis points decrease in total payout dispersion; that is 50.61% decrease from the mean (1.9%), albeit all the decrease comes from the upper end of the distribution. The economic association with the mean aggregate payout is somewhat smaller; a 2.51 basis points decrease, i.e. 13.2% decrease from the mean. On the other hand, when using the main index, the coefficient is positive and significant for total payout and dividends, using aggregate mean or dispersion.

Examining aggregate payouts may not provide additional and robust information to why we observe such a trend, and whether it is indeed in respond to changes in uncertainty. As a result, the next section examine payout behavior at the firm level.

5.2 Firm-level Analysis

Following the payout policy literature, I start with a baseline Tobit model similar to that used in Chay and Suh (2009); Cuny et al. (2009); Fenn and Liang (2001). Tobit models are widely used in payout policy studies since a significant portion of firms decide not to engage in a payout policy program[16], and therefore, censoring issues may lead to bias and inconsistent estimates when using a traditional OLS model. However, most of the analyses on previous studies are done in a cross sectional fashion, while the sample in this study is in a panel setup. Thus, my preferred base line model is a Tobit panel data model with random effects[17]:

$$Payout_{i,t} = \alpha + \beta \text{Index}_{i,t} + \gamma \text{CCI}_{i,t} + \delta \text{Controls}_{i,t} + \theta \text{Ind.} + \lambda \text{Year} + \psi \text{Season} + \nu_i + \epsilon_{i,t} \quad (1)$$

[16] The sample used in this study contains roughly 50% of firm-year observations that do not enter a payout program.

[17] Theoretically, Tobit panel data models cannot be used with fixed effects due to "incidental parameters problem ". However, Cuny et al. (2009) uses fixed effects by stating that empirical studies have found the incidental problem to be nonexistent.

where β captures the pure relation between the change in uncertainty levels and firm payout after controlling for overall investment opportunities (γ), a list of control variables previously shown to affect payout (δ), industry dummies (λ), and year (λ) & season dummies (ψ).

Table (3) reports the conditional marginal effects when using the main EPU index. After controlling for industry, time, and seasonality, consistent with results of other studies, virtually all of the control variables have the expected signs. For example, conditional on a firm being in a payout policy program, a one unit increase in the volatility of monthly stock return leads to an average of 8.36% decrease in total payout. Chay and Suh (2009) reports an average coefficient of -0.3[18]. As for uncertainty, findings are similar to what is observed in the mean aggregate payouts analysis, an increase in the level of economic policy uncertainty is associated with a positive and significant change in a firm's average total payout and repurchase ratio. Although no significance with dividends, perhaps due to the stickiness of such a policy, Brav et al. (2005); Jagannathan et al. (2000); Grullon and Michaely (2002). Economically, conditional on a firm being engaged in a payout policy, a one standard deviation increase in the main EPU index is associated with an average of 1.2 basis points increase in total payout or repurchase ratio; that is a 6.31% increase from the sample mean for total payout and a 14.98% increase from the sample mean for repurchases.

When regressing each component of the index individually on firm payout, results are not consistent for the news-based, tax reform uncertainty, or dispersion in the future level of CPI[19]. However, the GSU component, reported in table (4), is significantly negative across all forms of payouts. In fact, it is even stronger for dividends. Condi-

[18]The authors report average coefficients of 12 cross sectional yearly Tobit regressions. While I report the conditional marginal effect. Usually, conditional marginal effects are smaller in magnitude than the reported coefficients, since it estimates the effect on all observations, whether they are censored or not.

[19]Results of these three components are not reported in this paper.

tional on a firm paying dividends, a one standard deviation increase in the GSU index is associated with an average of 30.10 basis points decrease in a firm's dividend ratio, that is a 300% decrease from the sample mean; the average dividend ratio is 1%, albeit the distribution is significantly skewed. Repurchase and total payout respond with an average of -0.83 basis point; a 4.4% decrease from the sample mean for total payout. Thus, these results may seem to suggest that firms could respond to a rising uncertainty in government spending by decreasing payouts and relying more on internal financing, and agency issues may be of a less priority. However, such a conclusion cannot be reached without additional tests. Thus, the rest of the analyses will be focusing on the GSU index given its consistent initial results.

Table (7) runs the baseline Tobit model on firms that are considered financially constrained, i.e. have a value of 0 for the capital unconstrained dummy. Results are similar to those reported in table (4), but stronger for all payout methods. For firms that are capitally constrained, a one standard deviation increase in the GSU index is associated with -1.25 basis points in total payout or repurchase, conditional on the firm being in a payout policy program. That is a 15.63% decrease from the sample average for the repurchase ratio compared to a decrease of 10.37% when using all firms; i,e, both capitally constrained and unconstrained.

These results are based on a Tobit panel model. However, such a model requires strong econometric assumptions, such as normality and homoscedasticity in the error terms. In addition, the estimates are measured with the assumption that censored observations are equally responding to changes in the regressors, which may not be the case for payout policies, a sample selection may exist. For example, a firm's age may decrease its probability of initiating a payout policy, however, given that a firm is already enrolled in a payout program, age and payout amount are positively related. As a result, the next section attempts to address some of these concerns.

6 Robustness

To address concerns regarding the estimates being influenced by censored observations, I use a two-step Heckman estimator. A Heckman model assumes two components contributing to the payout policy process. The first decision is whether the manager decides to engage in a payout policy, which will be estimated using a Probit model[20]. The second decision examines how payout changes after a firm decides to enroll in the program, and here an OLS panel regression with fixed effects can be implemented. In order for this approach to yield robust results, I need to assume both decisions are independent and unique; i.e. the manager's decision to enroll in a payout program is independent of the manager's decision of how much to pay investors.

Thus, the first step will be estimating a Probit using a dummy variable that takes the value of 1 if a firm is paying any positive amounts during that year, and the explanatory variables are size and age. The decision to use size and age was arbitrary, and it is not based on a specific strain of literature. Secondly, the inverse Mills ratio is estimated from the Probit model to correct for the uncensored sample used in the panel OLS estimation. Thus, I specifically I estimate the followings:

$$Prob(Payout^*_{i,t} > 0) = \Phi(\alpha + \gamma_1 \text{Age}_{i,t} + \gamma_2 \text{Size}_{i,t} + \nu_i + \epsilon_{i,t}) \tag{2}$$

$$Inverese\ \ Mills = \hat{\lambda}_{i,t} = \lambda(\hat{\alpha} + \hat{\gamma}_1 \text{Age}_{i,t} + \hat{\gamma}_2 \text{Size}_{i,t}) = \phi(\hat{\gamma}' X_{i,t}) / \Phi(\hat{\gamma}' X_{i,t}) \tag{3}$$

$$\begin{aligned} E(Payout_{i,t} | Payout^*_{i,t} > 0) = \ & \alpha_i + \beta_1 \text{GSU}_{i,t} + \beta_2 \text{CCI}_{i,t} + \beta_3 \text{Controls}_{i,t} + \beta_4 \text{Ind.} \\ & + \beta_5 \text{Year} + \beta_6 \text{Season} + \beta_7 \hat{\lambda}_{i,t} + \epsilon_{i,t} \end{aligned} \tag{4}$$

[20] Unfortunately, fixed effects cannot be estimated for a Probit model, and therefore, random effects are used. Alternatively, a Logit fixed effects, albeit it has other econometric problems, is estimated for additional robustness, and results are similar to those reported using this approach.

Where equation (2) is a Probit model with random effects, Φ is the standard normal cumulative distribution function, and ϕ is the standard normal density function. $\hat{\lambda}$ is the estimated inverse Mills ratio, and equation (4) is a panel OLS estimate with fixed effects.

As can be seen from table(5), the coefficient on the GSU variable is negative and significant at the 1% level for all payout methods. A one standard deviation increase in the uncertainty index is associated with a decrease of 1.55 (2.63) basis point in repurchases (total payout). That is a decrease of 19.33% (13.86%) from the sample mean, consistent with earlier results from table (4).

Since violation of homoscedasticity and potential heterogeneity across firms may have some serious correlation with explanatory variables, another, albeit unconventional, approach can be done through estimating a Tobit model every year, and regressing the residuals on the time series variable, i.e. the uncertainty index. However, this approach requires strong assumptions on the distribution of error terms, and their independence across time. Thus, I use the following estimation model:

$$Payout_{y,i} = \hat{\alpha}_y + \hat{\beta}_y' Controls_{y,i} + \epsilon_{i,t}, \qquad \forall \ y = 1988, 1989, ..., 2015 \tag{5}$$

Where equation (5) is estimated in a cross sectional way separately every year using robust standard errors. The collective error terms are then regressed on the uncertainty index in a panel OLS with fixed effects, i.e.:

$$Payout_{i,t} - \hat{Payout}_{i,t} = \alpha_i + \beta_1 \text{GSU}_{i,t} + \beta_2 \text{CCI}_{i,t} + \beta_3 \text{Ind.} + \beta_4 \text{Year} + \beta_5 \text{Season} + \epsilon_{i,t} \tag{6}$$

For the results to be consistent, the coefficient for GSU should be negative; i.e. a higher level of government spending uncertainty should be associated with a lower than the predicted value from equation (5). Indeed, results from table (6) show consistent

estimates here as well; a one standard deviation increase in the GSU index is associated with a -1.25 basis points for total payout, or a 6.6% decrease from the mean. The estimated coefficient for repurchase is even more significant and economically larger; a one standard deviation increase in the GSU index is related to 0.84 basis points reduction in the repurchase ratio, that is a 10.45% decrease from the sample mean.

7 Concluding Remarks

Investors' confidence in being able to predict future economic policy changes are essential to maintain growth and flow of capital to the firm. In this paper, results seem to suggest that uncertainties related to future government spending may have a negative effect by creating capital frictions, and thus, firms that have potential growth are restricted to only internally generated cash flows. Future tests examining the relation between changes in uncertainties and cash levels on balance sheet may provide an additional insight to how payout policy decisions are made with relation to cash levels at the firm, and therefore, add a deeper understanding of corporate behavior during episodes of uncertainties.

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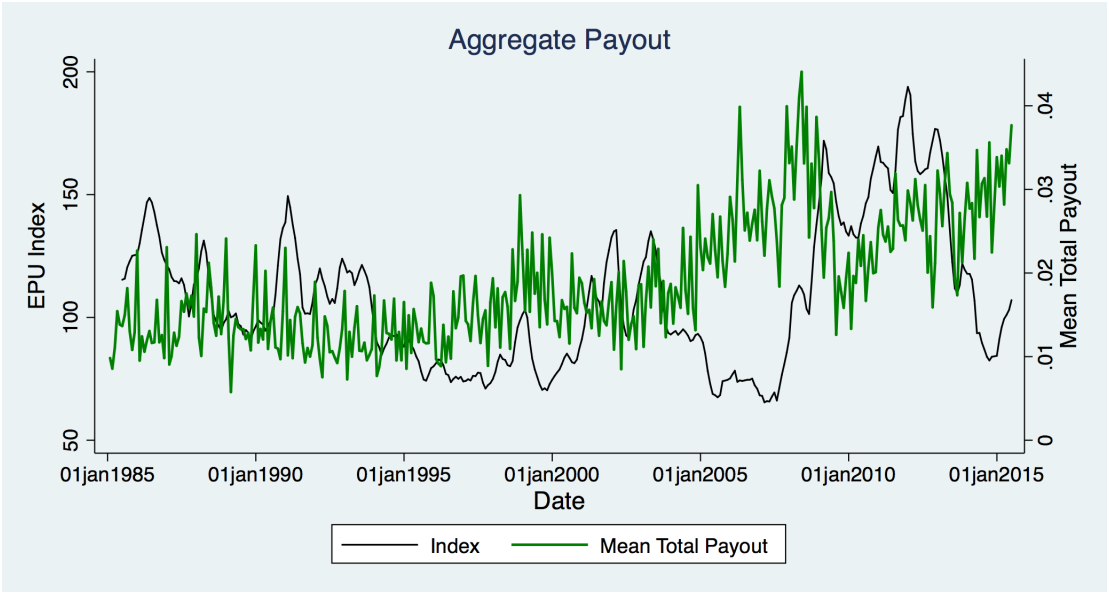
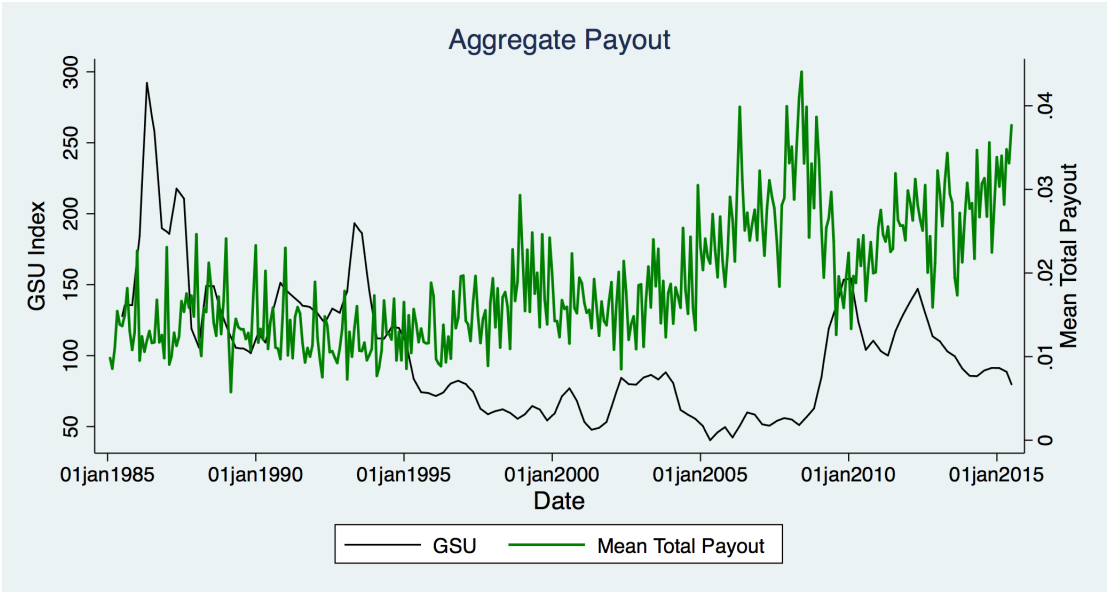


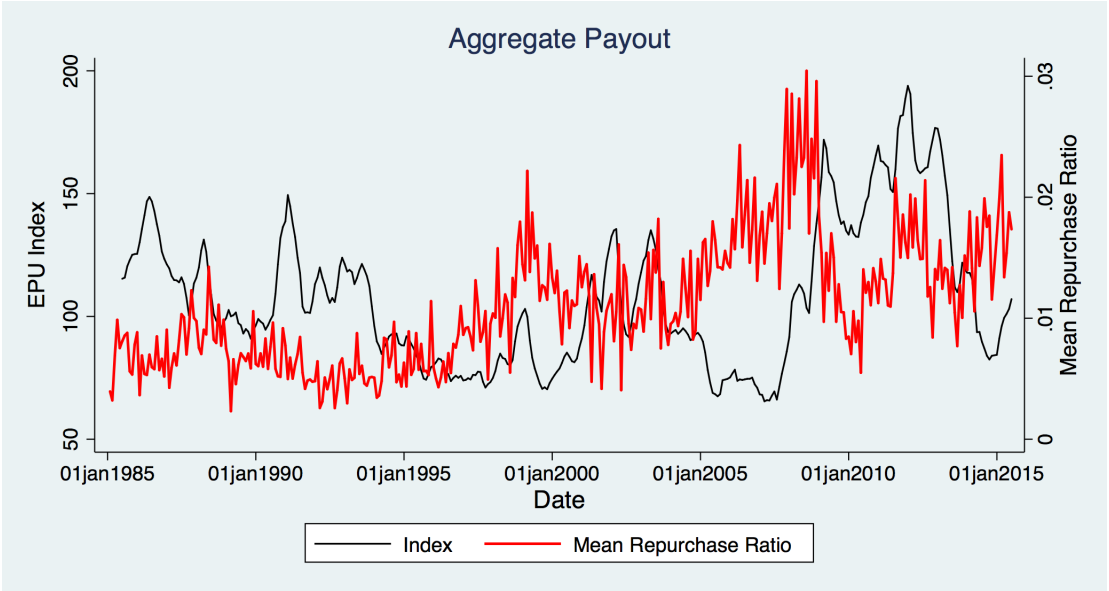
(a) Economic Policy Uncertianty Index



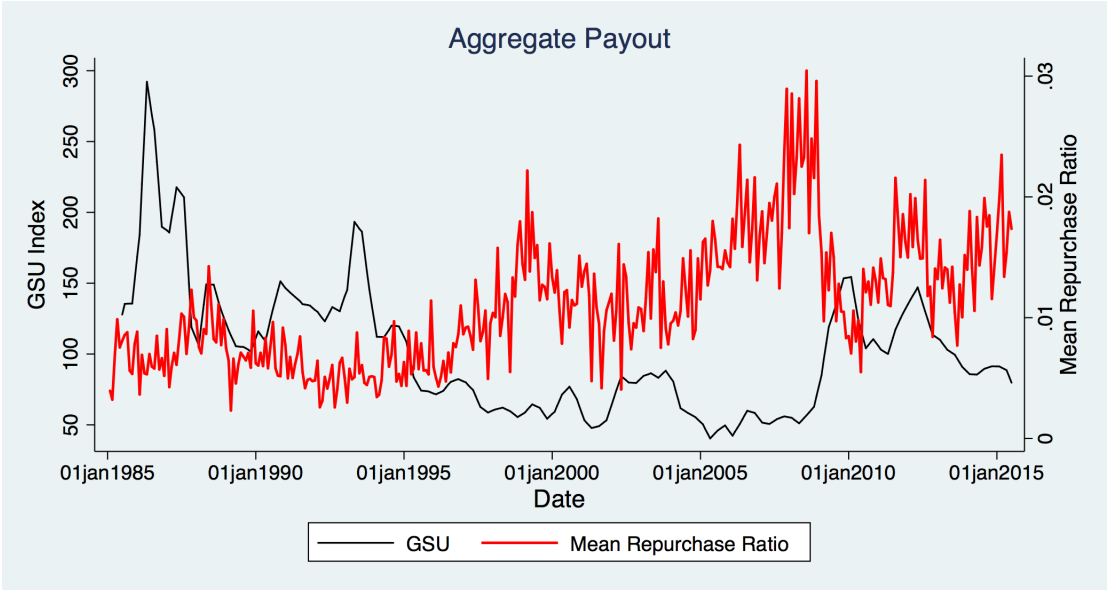
(b) Government Spending Uncertainty Index

This figure presents a six-month moving average of the economic policy uncertainty index (EPU), a six-month moving average of future government spending uncertainty index (GSU), and means of total payout for all firms reporting their financials in a given month. The EPU and GSU indexes are obtained for Baker et al. (2016). Total payout is measured as the sum of a) dividends over revenue ratio, and b) total share repurchases over revenue ratio. The data covers periods from the end of January 1985 to the end of June 2015.

Figure 1: **Mean of Monthly Aggregate Total Payout (1985-2015)**



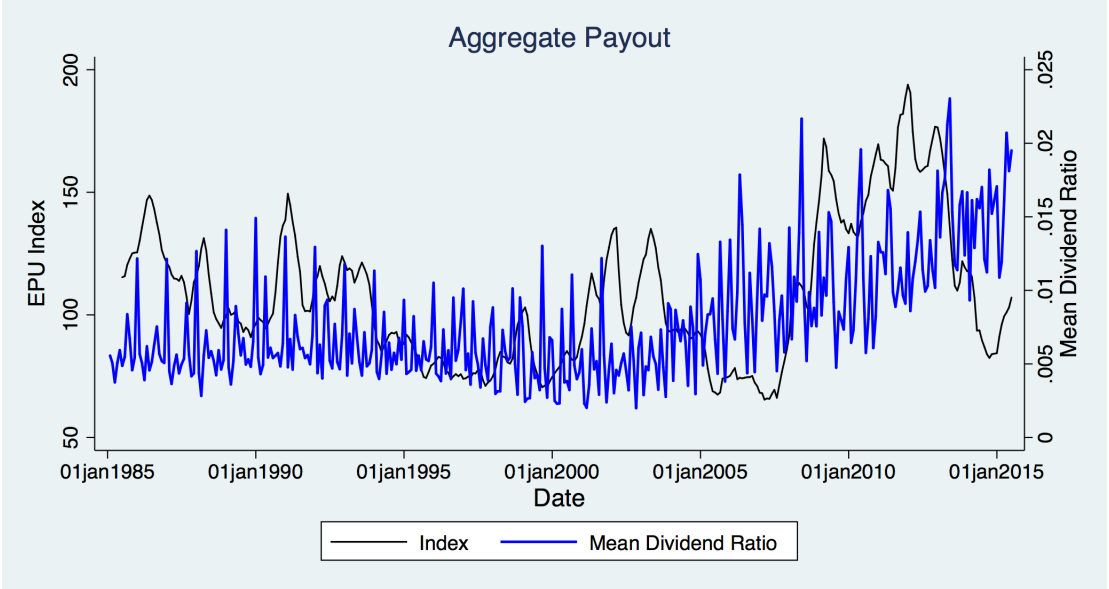
(a) Economic Policy Uncertianty Index



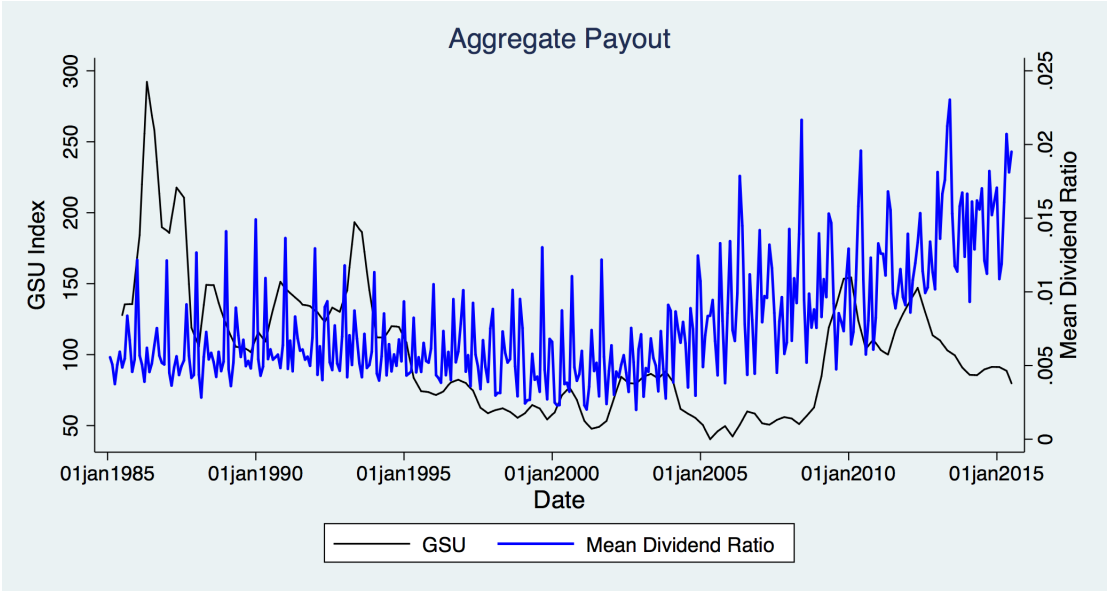
(b) Government Spending Uncertainty Index

This figure presents a six-month moving average of the economic policy uncertainty index (EPU), a six-month moving average of future government spending uncertainty index (GSU), and means of repurchase ratios for all firms reporting their financials in a given month. The EPU and GSU indexes are obtained for Baker et al. (2016). Repurchases are measured as the sum of common and preferred stock repurchases (data item # 115), adjusted for any decreases in preferred stocks (data item # 56), divided by total revenue. The data covers periods from the end of January 1985 to the end of June 2015.

Figure 2: **Mean of Monthly Aggregate Stock Repurchases (1985-2015)**



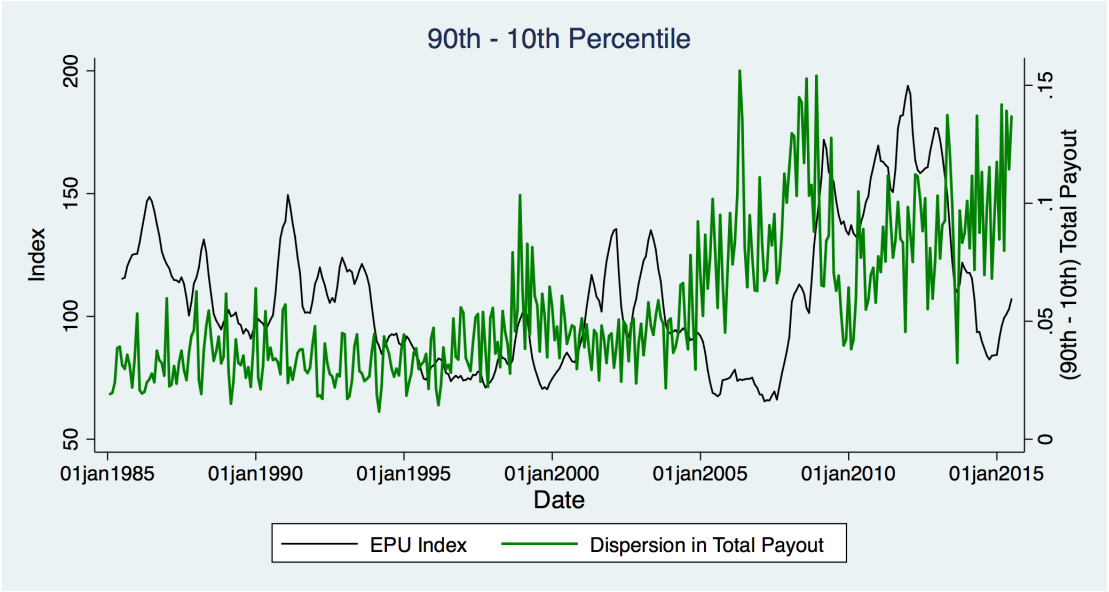
(a) Economic Policy Uncertianty Index



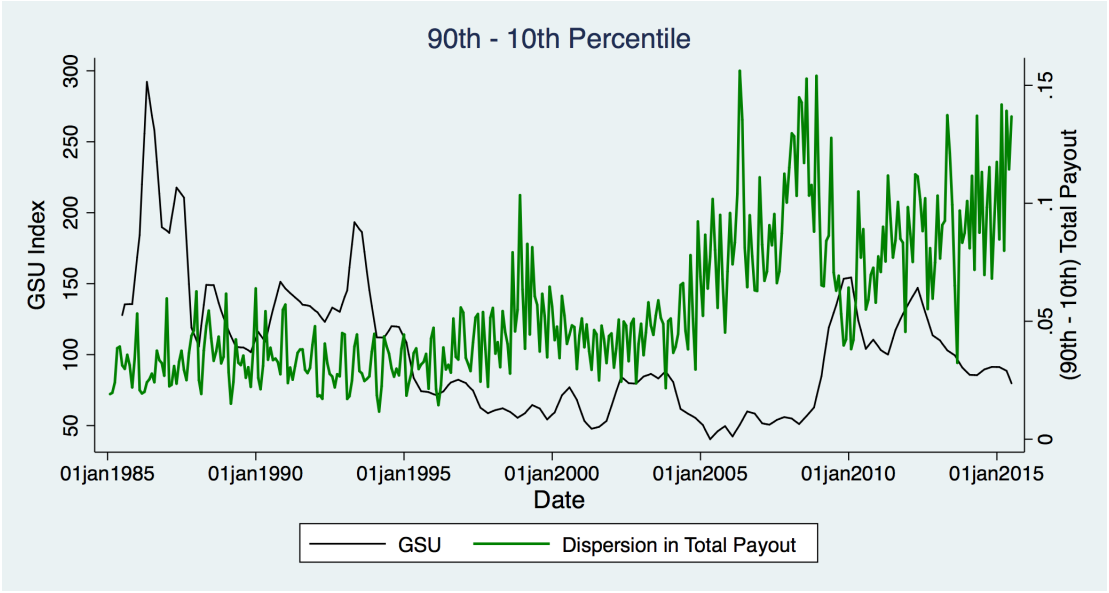
(b) Government Spending Uncertainty Index

This figure presents a six-month moving average of the economic policy uncertainty index (EPU), a six-month moving average of future government spending uncertainty index (GSU), and means of dividend ratios for all firms reporting their financials in a given month. The EPU and GSU indexes are obtained for Baker et al. (2016). Dividends are measured as the ratio of total dividends on common stock (data item # 21) over total sales (data item # 12). The data covers periods from the end of January 1985 to the end of June 2015.

Figure 3: **Mean of Monthly Aggregate Dividends (1985-2015)**



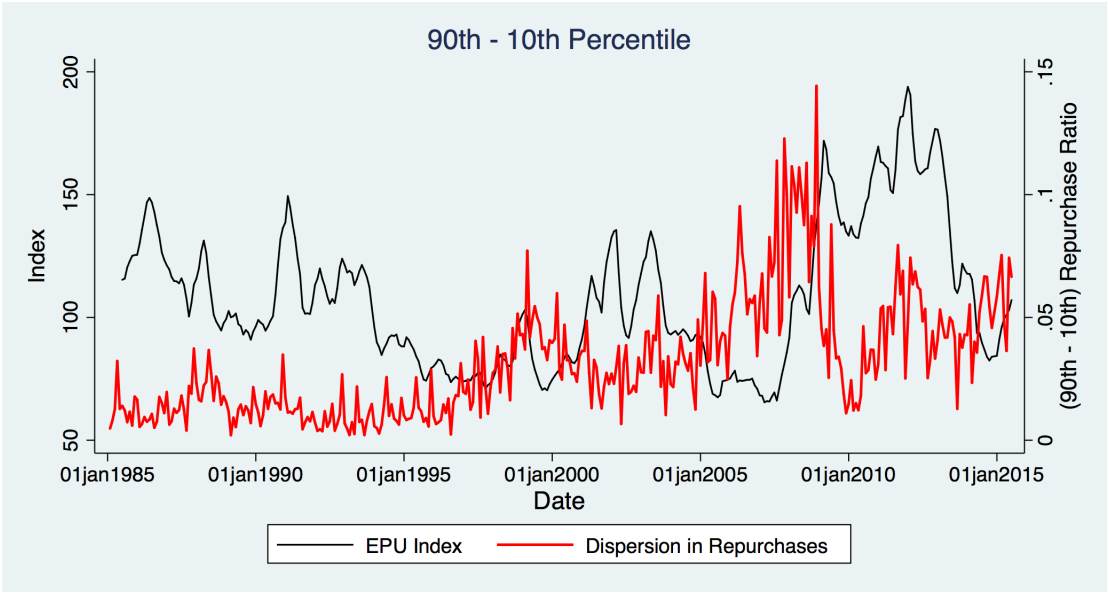
(a) Economic Policy Uncertianty Index



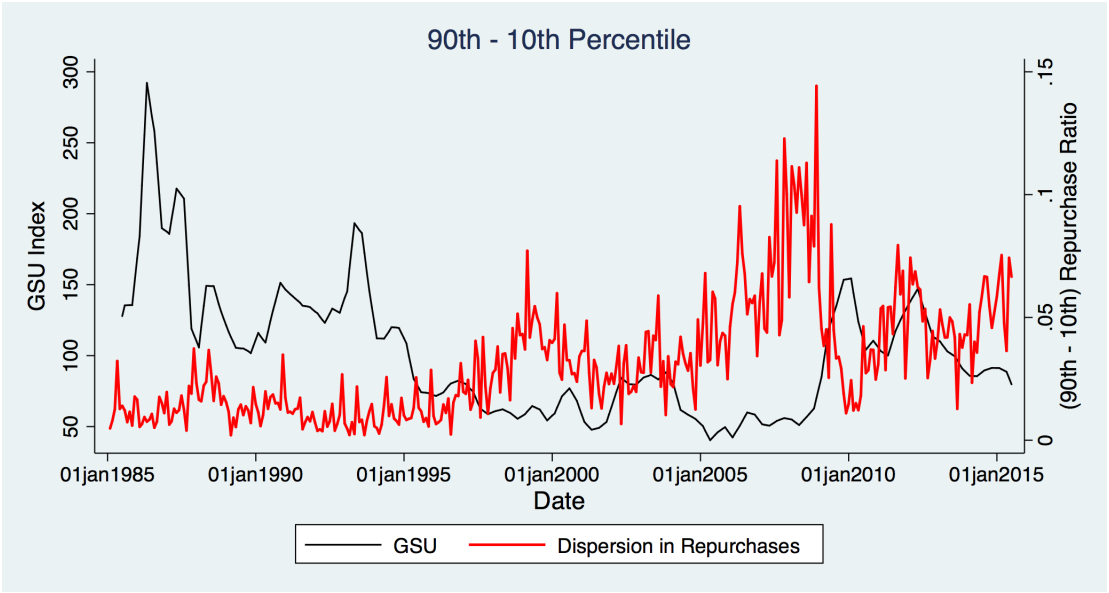
(b) Government Spending Uncertainty Index

This figure presents a six-month moving average of the economic policy uncertainty index (EPU), a six-month moving average of future government spending uncertainty index (GSU), and distances between 90^{th} and 10^{th} percentiles of the total payout for all firms reporting their financials in a given month. The EPU and GSU indexes are obtained for Baker et al. (2016). Total payout is measured as the sum of a) dividends over revenue ratio, and b) total share repurchases over revenue ratio. The data covers periods from the end of January 1985 to the end of June 2015.

Figure 4: **Dispersion in Monthly Aggregate Total Payout (1985-2015)**



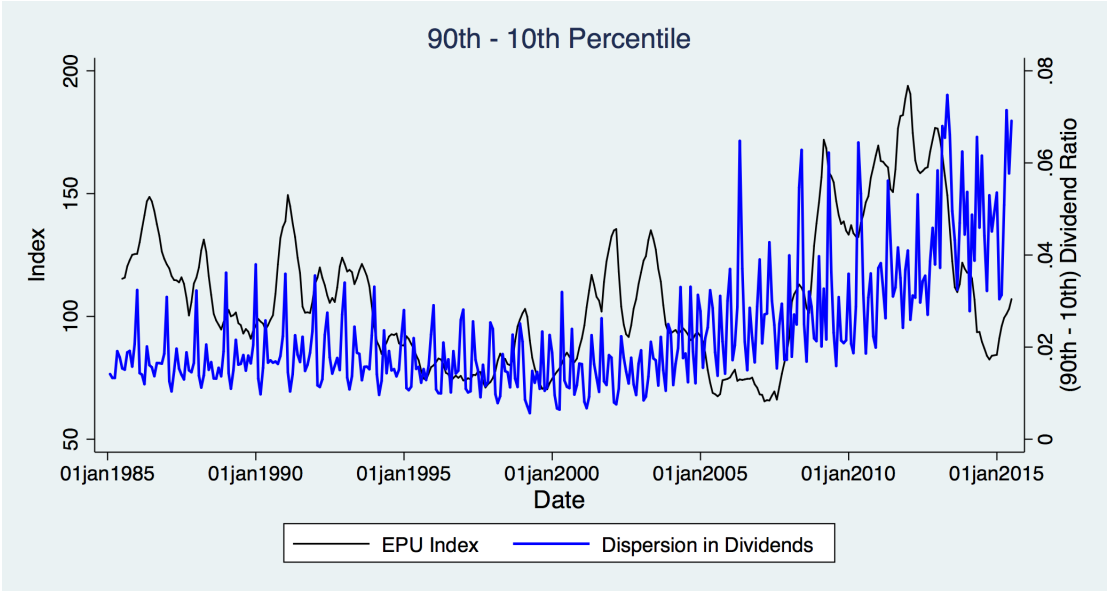
(a) Economic Policy Uncertianty Index



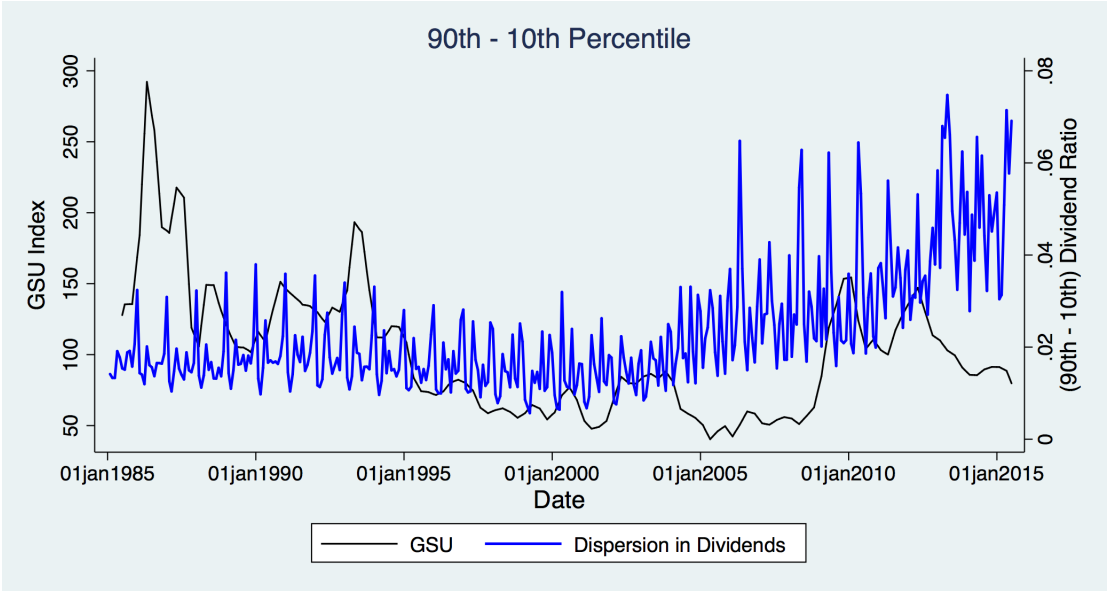
(b) Government Spending Uncertainty Index

This figure presents a six-month moving average of the economic policy uncertainty index (EPU), a six-month moving average of future government spending uncertainty index (GSU), and distances between 90^{th} and 10^{th} percentiles of repurchase ratios for all firms reporting their financials in a given month. The EPU and GSU indexes are obtained for Baker et al. (2016). Repurchases are measured as the sum of common and preferred stock repurchases (data item # 115), adjusted for any decreases in preferred stocks (data item # 56), divided by total revenue (data item # 12). The data covers periods from the end of January 1985 to the end of June 2015.

Figure 5: **Dispersion in Monthly Aggregate Stock Repurchases (1985-2015)**



(a) Economic Policy Uncertianty Index



(b) Government Spending Uncertainty Index

This figure presents a six-month moving average of the economic policy uncertainty index (EPU), a six-month moving average of future government spending uncertainty index (GSU), and distances between 90^{th} and 10^{th} percentiles of dividend ratios for all firms reporting their financials in a given month. The EPU and GSU indexes are obtained for Baker et al. (2016). Dividends are measured as the ratio of total dividends on common stock (data item # 21) over total sales (data item # 12). The data covers periods from the end of January 1985 to the end of June 2015.

Figure 6: **Dispersion in Monthly Aggregate Dividends (1985-2015)**

Table 1: Descriptive Statistics

This table reports the descriptive statistics for the panel data used in this study. *Totalpayout* is measured as the sum of repurchase and dividends. *Repurchase* is measured as the sum of common and preferred stock repurchases (data item # 115), adjusted for any decreases in preferred stocks (data item # 56), divided by total revenue (data item # 12). *Dividend* is measured as the ratio of total dividends on common stock (data item # 21) over total sales (data item # 12). *EPU* is measured for each firm-year observation as the average of the last six months of the economic policy uncertainty index leading to the date of the financial statement. *GSU* is measured for each firm-year observation as the average of last six month levels of dispersion in forecasts regarding future government spending. The EPU and GSU values are obtained from Baker et al. (2016) (The monthly values are available at http//www.policyuncertainty.com). *CCI* is measured for each firm-year observation as the average of the last six months of the Michigan Consumer Confidence Index (The index proxies for investment opportunities, it measures consumers' level of expectation regarding future economic conditions. The index can be obtained from http://www.sca.isr.umich.edu). Free cash flow (FCF) is measured as earnings before income, tax, and depreciation & amortization (data item # 13) minus capital expenditure (data item # 128) divided by total assets. *Market to book* ratio is calculated as $(Total\ Book\ Asset - Book\ Equity + Market\ Equity)/Total\ Book\ Asset$. *Stock Volatility* is the standard deviation of the last 24 monthly returns. For an observation to be in the final sample, the industry code number, i.e. SIC code, is not in the range of: (6000-6999, 4900-4949), total book value of assets are not less than $ 1 million, total dividends on common stock (data item # 21) and total cash dividends on common stock (data item # 127) and the total common and preferred stock repurchases (data item # 115) are not all missing, total dividends on common stock (data item # 21) is not reported as a negative value or exceeds total revenue of that year, and total revenue (data item # 12) or book value of common equity (data item # 11) is not reported in negative value.

Variable		**Mean**	**Std.**	**Min**	**Max**	**Observations**
Total Payout	Overall	0.019	0.049	0	0.331	N= 250,680
	Between		0.035	0	0.331	n= 22,551
	Within		0.038	-0.279	0.342	$\bar{T}$ = 11.1161
Repurchase	Overall	0.008	0.026	0	0.176	N= 217,621
	Between		0.012	0	0.176	n= 21,536
	Within		0.024	-0.109	0.18	$\bar{T}$ = 10.105
Dividend	Overall	0.01	0.027	0	0.189	N= 241,931
	Between		0.022	0	0.189	n= 21,400
	Within		0.018	-0.17	0.194	$\bar{T}$ = 11.3052
EPU	Overall	106.943	29.976	65.441	193.858	N = 171,721
	Between		19.078	65.911	193.858	n = 19,025
	Within		26.903	23.189	199.957	$\bar{T}$ = 9.03
GSU	Overall	97.171	41.808	40.378	292.221	N = 171,721
	Between		34.601	42.315	292.221	n = 19,025
	Within		34.454	-10.786	289.555	$\bar{T}$ = 9.03
CCI	Overall	85.99	12.322	57.967	109.45	N = 210,123
	Between		8.617	58.133	109.45	n = 21,526
	Within		10.712	51.283	117.946	$\bar{T}$ = 9.76
FCF	Overall	-0.012	0.239	-1.175	0.355	N = 245,402
	Between		0.272	-1.175	0.355	n = 22,466
	Within		0.143	-1.328	1.081	$\bar{T}$= 10.92
Market to Book	Overall	1.934	1.814	0.474	12.109	N = 214,659
	Between		1.888	0.474	12.109	n = 20,800
	Within		1.249	-7.374	12.649	$\bar{T}$ = 10.32
Leverage	Overall	0.157	0.165	0	0.674	N = 251,052
	Between		0.150	0	0.674	n = 22,573
	Within		0.105	-0.449	0.792	$\bar{T}$ = 11.12
ROA	Overall	0.063	0.225	-1.070	0.432	N = 250,642
	Between		0.260	-1.070	0.432	n = 22,556
	Within		0.130	-1.208	1.185	$\bar{T}$ = 11.11
Stock Volatility	Overall	0.148	0.08	0.043	0.480	N = 146,128
	Between		0.074	0.043	0.480	n = 13,552
	Within		0.054	-0.157	0.532	$\bar{T}$= 10.78
Capital Unconstrained Dummy	Overall	0.500	0.500	0	1	N = 218,384
	Between		0.398	0	1	n = 20,831
	Within		0.283	-0.470	1.480	$\bar{T}$ = 10.48

Table 2: Aggregate Payout OLS

This table reports an OLS model estimate. Column (1) regress means of total payout for all firms reporting their financials in a given month on a six-month moving average of the economic policy uncertainty index (EPU). Column (2) regress means of total payout for all firms reporting their financials in a given month on a six-month moving average of the future government spending uncertainty index (GSU). Columns (3) and (4) replicates (1) and (2) but using mean repurchase amount for a given month; the sum of common and preferred stock repurchases (data item # 115), adjusted for any decreases in preferred stocks (data item # 56), divided by total revenue (data item # 12). Columns (5) and (6) replicates (1) and (2) but using mean dividend amount for a given month; the sum of common and preferred stock repurchases (data item # 115), adjusted for any decreases in preferred stocks (data item # 56), divided by total revenue (data item # 12). Column (7) regress distances between 90^{th} and 10^{th} percentiles of total payouts reported every month on the economic policy uncertainty index (EPU) six-month moving average. Column (8) regress distances between 90^{th} and 10^{th} percentiles of total payouts reported every month on the future government spending uncertainty index (GSU) six-month moving average. Columns (9) and (10) replicates (8) and (9) but using distances between 90^{th} and 10^{th} percentiles of repurchase amounts reported every month. Finally, Columns (11) and (12) replicates (8) and (9) but using distances between 90^{th} and 10^{th} percentiles of dividend amounts reported every month. Numbers in prentheses are the t-statistics for the coeffecient estimates.

	Means						Dispersion					
	Total Payout		Repurchase		Dividend		Total Payout		Repurchase		Dividend	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
EPU	.00003**		.00000		.00004***		.00015***		.00002		.00014***	
	(2.18)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)	
GSU		-.00006***		-.00005***		-.00000		-.00023***		-.00024***		-.00001
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
Constant	.015***	.0246***	.0109***	.0167***	.0037***	.0082***	.040***	.0796***	.0298***	.0565***	.0086***	.0245***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	360	360	360	360	360	360	360	360	360	360	360	360
R-squared	0.017	0.116	0.000	0.214	0.073	0.002	0.019	0.117	0.001	0.205	0.084	0.002

Standard errors in parentheses
*** p¡0.01, ** p¡0.05, * p¡0.1

Table 3: Baseline Tobit Random Effects Using EPU Index

This table reports the conditional marginal effects, measured at variable means, for a Tobit panel data model with random effects. Columns (1) and (2) estimate the model with *Totalpayout* as the dependent variable, it is calculated as the sum of repurchase and dividends. Columns (3) and (4) estimate the model with *Repurchase* amount as the dependent variable, it is calculated as the sum of common and preferred stock repurchases (data item # 115), adjusted for any decreases in preferred stocks (data item # 56), divided by total revenue (data item # 12). Columns (5) and (6) estimate the model with *Dividend* amount as the dependent variable, it is calculated as the ratio of total dividends on common stock (data item # 21) over total sales (data item # 12). *EPU* is measured for each firm-year observation as the average of the last six months of the economic policy uncertainty index leading to the date of the financial statement. The EPU values are obtained from Baker et al. (2016)(The monthly values are available at http//www.policyuncertainty.com). *CCI* is measured for each firm-year observation as the average of the last six months of the Michigan Consumer Confidence Index (The index proxies for investment opportunities, it measures consumers' level of expectation regarding future economic conditions. The index can be obtained from http://www.sca.isr.umich.edu). Free cash flow (*FCF*) is measured as earnings before income, tax, and depreciation & amortization (data item # 13) minus capital expenditure (data item # 128) divided by total assets. *Market to book* ratio is calculated as $(Total\ Book\ Asset - Book\ Equity + Market\ Equity)/Total\ Book\ Asset$. *Stock Volatility* is the standard deviation of the last 24 monthly returns. All firm measures are winsorized at the 1 and 99 percentiles. Numbers in prentheses are standard errors of the coeffecient estimates.

	Conditional M.E. for total payout		Conditional M.E. for repurchase		Conditional M.E. for dividends	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
EPU	.00003***	.00004***	.00002***	.00004***	.00001***	.0006
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
CCI		.00001		-.00001		.00200*
		(.000)		(.000)		(.001)
FCF		.01222***		.00688***		.62452***
		(.002)		(.001)		(.071)
Market to Book		-.00050***		-.00048***		.01220***
		(.000)		(.000)		(.004)
Leverage		-.006522***		-.00649***		-.15907***
		(.001)		(.001)		(.029)
ROA		.01125***		.00829***		.66723***
		(.002)		(.002)		(.079)
Stock Volatility		-.08368***		-.05005***		-4.37026***
		(.002)		(.001)		(.095)
N	171,052	99,943	160,480	93,365	162,473	98,969
Industry Dummies		YES		YES		YES
Year Dummies		YES		YES		YES
Month Dummies		YES		YES		YES

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Baseline Tobit Random Effects Using GSU Index

This table reports the conditional marginal effects, measured at variable means, for a Tobit panel data model with random effects. Columns (1) and (2) estimate the model with *Totalpayout* as the dependent variable, it is calculated as the sum of repurchase and dividends. Columns (3) and (4) estimate the model with *Repurchase* amount as the dependent variable, it is calculated as the sum of common and preferred stock repurchases (data item # 115), adjusted for any decreases in preferred stocks (data item # 56), divided by total revenue (data item # 12). Columns (5) and (6) estimate the model with *Dividend* amount as the dependent variable, it is calculated as the ratio of total dividends on common stock (data item # 21) over total sales (data item # 12). *GSU* is measured for each firm-year observation as the average of last six month levels of dispersion in forecasts regarding future government spending. The GSU values are obtained from Baker et al. (2016)(The monthly values are available at http//www.policyuncertainty.com). *CCI* is measured for each firm-year observation as the average of the last six months of the Michigan Consumer Confidence Index (The index proxies for investment opportunities, it measures consumers' level of expectation regarding future economic conditions. The index can be obtained from http://www.sca.isr.umich.edu). Free cash flow (*FCF*) is measured as earnings before income, tax, and depreciation & amortization (data item # 13) minus capital expenditure (data item # 128) divided by total assets. *Market to book* ratio is calculated as $(Total\ Book\ Asset - Book\ Equity + Market\ Equity)/Total\ Book\ Asset$. *Stock Volatility* is the standard deviation of the last 24 monthly returns. All firm measures are winsorized at the 1 and 99 percentiles. Numbers in prentheses are z-statistics for the coeffecient estimates.

	Conditional M.E. for total payout		Conditional M.E. for repurchase		Conditional M.E. for dividends	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
GSU	-.00001***	-.00002***	-.00003***	-.00002***	.00001***	-.00072***
	(-6.60)	(-3.51)	(-24.01)	(-3.59)	(13.24)	(-3.56)
CCI		-.00008***		-.0001***		.0005
		(-3.15)		(-4.72)		(0.52)
FCF		.01211***		.0068***		.6218***
		(7.30)		(4.62)		(8.72)
Market to Book		-.0005***		-.0005***		.01244***
		(-6.69)		(-7.30)		(3.36)
Leverage		-.0065***		-.00647***		-.15812***
		(-9.33)		(-10.67)		(-5.39)
ROA		.01138***		.0084***		.6702***
		(6.47)		(5.43)		(8.50)
Stock Volatility		-.0836***		-.04996***		-4.37082***
		(-52.25)		(-36.72)		(-45.85)
N	171,052	99,943	160,480	93,365	162,473	98,969
Industry Dummies	NO	YES	NO	YES	NO	YES
Year Dummies	NO	YES	NO	YES	NO	YES
Month Dummies	NO	YES	NO	YES	NO	YES

Z-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5: Two-step Heckman Model

This table reports the results for a two-step Heckman model done manually. The first step runs a Probit model with random effects estimating the probability a firm enrolls in a payout policy. The second step estimates a panel OLS with fixed effects adjusted with the inverse Mills ratio. *Totalpayout* is calculated as the sum of repurchase and dividends. *Repurchase* amount is calculated as the sum of common and preferred stock repurchases (data item # 115), adjusted for any decreases in preferred stocks (data item # 56), divided by total revenue (data item # 12). *Dividend* is calculated as the ratio of total dividends on common stock (data item # 21) over total sales (data item # 12). *GSU* is measured for each firm-year observation as the average of last six month levels of dispersion in forecasts regarding future government spending. The GSU values are obtained from Baker et al. (2016)(The monthly values are available at http//www.policyuncertainty.com). Controls include *CCI* index, *FCF*, *Market to Book*, *Leverage*, *ROA*, *StockVolatility*. Error terms are clustered at the firm level. All firm measures are winsorized at the 1 and 99 percentiles. Numbers in prentheses are t-statistics for the coeffecient estimates.

	Total Payout		Repurchase		Dividends	
VARIABLES	Probit	OLS	Probit	OLS	Probit	OLS
GSU		-.000063***		-.000037***		-.000018***
		(-4.11)		(-2.95)		(-3.06)
Controls		YES		YES		YES
Year Dummies		YES		YES		YES
Month Dummies		YES		YES		YES
Firm FE		YES		YES		YES
Inverse Mills		.012711***		.009999*		.002851**
		(2.74)		(1.77)		(2.42)
Age	-.0138***		.0191***		-.0488***	
	(-9.96)		(19.44)		(-7.11)	
Size	.385***		.177***		.593***	
	(53.78)		(38.94)		(9.02)	
Constant	-2.074***	.051886***	-1.861***	.024144**	-4.655	.014845***
	(-68.94)	(5.12)	(-88.13)	(2.24)	(-)	(3.06)
N	217,758	51,563	195,540	50,559	209,667	51,563
R-squared		0.048		0.043		0.047
Number of firms	20,803	7,401	20,070	7,362	19,692	7,401

T-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6: Tobit Residuals

This table reports the results for regressing residulas, obtianed from a cross sectional Tobit estimated yearly, on the GSU and CCI measures using a panel fixed effects model. The yearly tobit is estimated, with robust standard errors, by regressing the payout measure on the follwoings; FCF, $Market\ to\ Book$, $Leverage$, ROA, and $StockVolatility$. GSU is measured for each firm-year observation as the average of last six month levels of dispersion in forecasts regarding future government spending. The GSU values are obtained from Baker et al. (2016)(The monthly values are available at http//www.policyuncertainty.com). CCI is measured for each firm-year observation as the average of the last six months of the Michigan Consumer Confidence Index (The index proxies for investment opportunities, it measures consumers' level of expectation regarding future economic conditions. The index can be obtained from http://www.sca.isr.umich.edu). $Totalpayout$ is calculated as the sum of repurchase and dividends. *Repurchase* amount is calculated as the sum of common and preferred stock repurchases (data item # 115), adjusted for any decreases in preferred stocks (data item # 56), divided by total revenue (data item # 12). *Dividend* is calculated as the ratio of total dividends on common stock (data item # 21) over total sales (data item # 12). Error terms are clustered at the firm level. All firm measures are winsorized at the 1 and 99 percentiles. Numbers in prentheses are t-statisitcs for the coeffecient estimates.

VARIABLES	(1) Total Payout	(2) Repurchase	(3) Dividend
GSU	-.00003*	-.00002**	-.00476***
	(-1.93)	(-1.99)	(-4.01)
CCI	.00018***	.00016***	.0013
	(3.42)	(4.09)	(0.37)
Constant	-.05716***	-.05976***	-4.5870***
	(-7.30)	(-10.65)	(-7.43)
N	91,271	84,908	91,271
R-squared	0.012	0.038	0.012
Number of firms	10,507	10,238	10,507
Industry Dummies	NO	NO	NO
Firm FE	YES	YES	YES
Year Dummies	YES	YES	YES
Month Dummies	YES	YES	YES

T-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 7: Tobit Random Effects for Capital Constrained Firms

This table reports the conditional marginal effects, measured at variable means, for a Tobit panel data model with random effects estimated for firms that are labeld as capital constrained firms. Capital constrained firms are defined using Hadlock and Pierce (2010)'s method of scoring system. Firms that have a score higher than the year mean will be labeld as a capital constrained firm. Columns (1) and (2) estimate the model with *Totalpayout* as the dependent variable, it is calculated as the sum of repurchase and dividends. Columns (3) and (4) estimate the model with *Repurchase* amount as the dependent variable, it is calculated as the sum of common and preferred stock repurchases (data item # 115), adjusted for any decreases in preferred stocks (data item # 56), divided by total revenue (data item # 12). Columns (5) and (6) estimate the model with *Dividend* amount as the dependent variable, it is calculated as the ratio of total dividends on common stock (data item # 21) over total sales (data item # 12). *GSU* is measured for each firm-year observation as the average of last six month levels of dispersion in forecasts regarding future government spending. The GSU values are obtained from Baker et al. (2016)(The monthly values are available at http//www.policyuncertainty.com). *CCI* is measured for each firm-year observation as the average of the last six months of the Michigan Consumer Confidence Index (The index proxies for investment opportunities, it measures consumers' level of expectation regarding future economic conditions. The index can be obtained from http://www.sca.isr.umich.edu). Free cash flow (*FCF*) is measured as earnings before income, tax, and depreciation & amortization (data item # 13) minus capital expenditure (data item # 128) divided by total assets. *Market to book* ratio is calculated as $(Total\ Book\ Asset - Book\ Equity + Market\ Equity)/Total\ Book\ Asset$. *Stock Volatility* is the standard deviation of the last 24 monthly returns. All firm measures are winsorized at the 1 and 99 percentiles. Numbers in prentheses are z-statistics for the coeffecient estimates.

VARIABLES	(1) Conditional M.E. for total payout	(2) Conditional M.E. for repurchase	(3) Conditional M.E. for dividends
GSU	-.00003***	-.00003***	-.00088***
	(-3.86)	(-4.17)	(-3.53)
CCI	-.00006**	-.00009***	.00031
	(-2.01)	(-3.62)	(0.28)
FCF	.02195***	.01229***	.75970***
	(9.57)	(6.14)	(8.29)
Market to Book	-.00045***	-.0005***	.02602***
	(-3.70)	(-4.70)	(5.07)
Leverage	-.00552***	-.00596***	-.19583***
	(-6.30)	(-8.01)	(-5.49)
ROA	.01817***	.01708***	.28747***
	(7.10)	(7.70)	(2.76)
Stock Volatility	-.12059***	-.06718***	-5.32504***
	(-48.44)	(-32.83)	(-41.37)
N	64,654	61,037	64,533
Industry Dummies	YES	YES	YES
Year Dummies	YES	YES	YES
Month Dummies	YES	YES	YES

Z-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1