universität wien

WU WIRTSCHAFTSUNIVERSITÄT WIEN VIENNA UNIVERSITY OF ECONOMICS AND BUSINESS

WU International Taxation Research Paper Series

No. 2017 - 04

Research Papers

Tax Uncertainty and Dividend Payouts

Harald Amberger

Tax Uncertainty and Dividend Payouts

Harald Amberger*
Vienna University of Economics and Business
Department of Finance, Accounting and Statistics
Institute for Accounting and Auditing
Tax Management Group

April 2017

I appreciate valuable comments from Kathleen Andries, Nathalie Bravo, Eva Eberhartinger, Dave Kenchington (discussant), Kevin Markle, Benjamin Osswald, Silke Ruenger, David Samuel, and Kelly Wentland, two anonymous reviewers for the ATA Midyear Meeting 2017, participants at the 3rd Doctoral Research Seminar in Vienna, the ATA Midyear Meeting 2017 in Phoenix, and seminar participants in the DIBT Research Seminar at WU Vienna. I thank the Tippie College of Business at the University of Iowa for their kind hospitality when working on this paper. I also gratefully acknowledge financial support from the Austrian Science Fund (FWF): W 1235-G16.

* I can be reached at harald.amberger@wu.ac.at or +43/1/31336-5656.
This is a draft version; please do not cite or circulate without the permission of the author.

Tax Uncertainty and Dividend Payouts

Abstract

I examine whether and to what extent tax uncertainty affects a firm's dividend payouts. Based on the argument that tax uncertainty impairs the persistence and predictability of after-tax cash flows, I hypothesize and find that firms with greater tax uncertainty exhibit a lower probability of dividend payouts. The effect of tax uncertainty is stronger in the presence of financial constraints and weaker for firms that distribute dividends to alleviate agency conflicts. Furthermore, I find a negative effect of tax uncertainty on dividend levels, which is moderated by the costs of dividend reductions. These results are economically meaningful as a one standard deviation higher tax uncertainty leads to a 9.9 percentage point lower probability and a $23.6 million reduction in dividend payouts. Taken together, my findings document a real effect of tax avoidance and contribute to the understanding of interactions between uncertain tax avoidance and a firm's financial ecosystem.

Keywords:

Tax Uncertainty, Tax Avoidance, Dividend Payouts, Real Effects, Share Repurchases

JEL-Classification:

G30, G35, H25, H26, H32

1. Introduction

Dividend payouts to shareholders are an integral part of a firm's financial ecosystem (Farre-Mensa, Michaely, and Schmalz 2014). In this study, I examine whether and to what extent tax uncertainty affects both the decision to distribute dividends and their amount. Goh, Lee, Lim, and Shevlin (2016) argue that shareholders benefit from tax avoidance as lower tax payments reduce the cost of equity. However, aside from diminishing tax payments, tax avoidance induces uncertainty (Neuman 2016) that affects overall firm risk (Guenther, Matsunaga, and Williams 2017), firm value (Drake, Lusch, and Stekelberg 2017), cash holdings (Hanlon, Maydew, and Saavedra 2017), and investment (Jacob, Wentland, and Wentland 2016). These effects of tax uncertainty, which constitutes the second dimension of a firm's tax-avoidance strategy, cast doubt on the argument that shareholders necessarily benefit from tax avoidance.

I define tax uncertainty as uncertainty in a firm's tax position that leads to volatile tax payments over time.[1] Uncertainty in this regard stems from "grey area" tax avoidance, which includes tax positions with ex-ante uncertainty and a high likelihood of being overturned in a tax audit (Dyreng, Hanlon, and Maydew 2016). Although reducing tax payments (Edwards, Schwab, and Shevlin 2016), "grey area" tax avoidance raises IRS audit risk and the chance of future tax repayments, interest charges, and fines. As audit risk and the predictability of audit outcomes differ across countries, tax uncertainty is not fully idiosyncratic but conditional on country-specific factors that are not directly under a firm's control (e.g., the rule of law, audit effort, etc.).

Recent anecdotes support the argument that tax uncertainty might adversely affect firms and their shareholders. A Financial Times report, for instance, suggests that an increasing number of U.S. firms alert their investors to the negative consequences of tax uncertainty for

[1] To provide a direct conceptual link to dividends being paid out of after-tax cash flows, I limit the definition of tax uncertainty to potential cash effects.

after-tax cash flows (Houlder 2016). Based on the argument that uncertain tax payments impairs the persistence and predictability of after-tax cash flows, I hypothesize that tax uncertainty negatively affects dividend payouts.

The hypothesized relation between tax uncertainty and dividend payouts rests on the argument that volatile tax payments contribute to overall cash-flow uncertainty. Uncertain cash flows impair the persistence and predictability of after-tax cash flows and increase the likelihood of liquidity shortfalls. As financing liquidity shortfalls in external capital markets is costly for a firm (Myers and Majluf 1984), managers consider cash-flow uncertainty when deciding on dividend payouts (Lintner 1956, Brav, Graham, Harvey, and Michaely 2005). Further, firms with uncertain cash flows exhibit a lower probability of achieving persistent dividend levels over time (Chay and Suh 2009). Managers adjust dividend payouts to accommodate cash-flow uncertainty as capital markets heavily punish dividend reductions and impersistent dividend levels (Healy and Palepu 1988, Michaely, Thaler, and Womack 1995). Thus, firms with greater tax uncertainty are less likely to distribute dividends and they exhibit lower dividend levels.

Several arguments, however, suggest that the effect of tax uncertainty on dividend payouts is ex-ante unclear and therefore an empirical question. First, instead of adjusting dividend payouts, firms might delay investment to accommodate cash-flow uncertainty (Jacob et al. 2016). Second, volatility in tax payments might result from benign tax avoidance where the sources of variation in tax payments are known to managers (Guenther et al. 2017). Third, operating uncertainty might be the main driver of cash-flow uncertainty, which impedes evidence for an effect of tax uncertainty.

To examine the decision to distribute dividends and the amount of dividend payouts, I obtain two samples of U.S. public firms with financial statement data for fiscal years 1993-2014.

I calculate the coefficient of variation of annual cash effective tax rates (ETRs) over five prior years as a proxy for tax uncertainty (McGuire, Neuman, and Omer 2013, Jacob et al. 2016). This is an intuitive measure as firms with uncertain tax positions exhibit more volatile tax payments over time (Neuman 2016). In this regard, past cash ETRs are less strongly affected by financial reporting incentives than ex-ante proxies for tax uncertainty (e.g., unrecognized tax benefits (UTBs); Robinson, Stomberg, and Towery 2015) and provide a direct conceptual link to dividends being paid out of after-tax cash flows. Furthermore, Drake et al. (2017) find that variation in past cash ETRs predicts volatility in tax payments, which allows managers to form expectations about future tax uncertainty. I add long-run cash ETRs (Dyreng Hanlon, and Maydew 2008) in all tests to segregate the level and the uncertainty of tax payments as the two dimensions of a firm's tax-avoidance strategy.

The first set of tests analyzes a firm's decision to distribute dividends. Results indicate that firms with greater tax uncertainty exhibit a lower probability of dividend payouts. This effect is economically meaningful as a one standard deviation higher tax uncertainty reduces the probability of dividend payouts by 9.9 percentage points. The effect of tax uncertainty is similar to non-tax determinants of dividend payouts, which seems reasonable as tax payments represent a major share of a firm's after-tax cash flow where uncertainty is difficult to hedge.

I conduct two cross-sectional tests to corroborate these results. First, I study financially constrained firms and expect a stronger effect of tax uncertainty on dividend payouts as these firms exhibit higher costs of external financing (Whited 1992, Faulkender and Petersen 2006). Results are in line with this expectation and suggest that the relevance of tax uncertainty increases in the costs of obtaining external funds. In addition, these results support the argument that tax uncertainty affects dividend payouts through the channel of cash-flow uncertainty.

Second, I analyze firms with high institutional ownership and predict a weaker effect of tax uncertainty as agency aspects dominate their dividend-payout decisions (Allen, Bernardo, and Welch 2000). Results are consistent with this prediction and suggest that managers consider volatile tax payments in a dividend-payout decision as the effect of tax uncertainty varies according to the motives for dividend payouts.

The second set of tests examines dividend levels. For a subsample of dividend-paying firms, I find that firms with greater tax uncertainty exhibit lower dividend levels. The effect of tax uncertainty is again economically meaningful and comparable to non-tax determinants. A one standard deviation higher tax uncertainty reduces dividend payouts by 10 percent, which is equivalent to lower dividend payouts to the tune of $23.6 million for the average dividend-paying firm. Thus, tax uncertainty is a relevant determinant of observable dividend levels.

In a third cross-sectional test, I examine young and growing firms at the capital-infusion stage (DeAngelo, DeAngelo, and Stulz 2006). I expect a weaker effect of tax uncertainty on the amount of dividend payouts as these firms exhibit low costs of dividend reductions (Leary and Michaely 2011). Results are consistent with this expectation and suggest that the effect of tax uncertainty on dividend levels varies with the costs of reducing dividend payouts.

In addition to cross-sectional tests, I conduct a battery of sensitivity analyses to assess the robustness of my baseline results. First, I investigate alternative measures for tax uncertainty and show that my results are unaffected by loss firms, winsorizing annual cash ETRs, more extreme forms of tax uncertainty, volatility in tax payments induced by benign tax-avoidance strategies, and endogeneity concerns. Second, I include firm-fixed effects in the regression, alleviating concerns that time-invariant firm characteristics might drive my results.

In a series of supplementary tests, I provide corroborating evidence for the effect of tax uncertainty on dividend payouts. First, I conduct time-series tests and show that tax uncertainty contributes to changes in dividend payouts over time. I also examine the 2003 dividend tax cut providing an exogenous shock to a firm's payout policy and document that firms with high tax uncertainty reacted less strongly to the tax reform. Second, I show that the effect of tax uncertainty is independent from a firm's operating uncertainty. This suggests that tax uncertainty is a dimension of overall firm risk having distinct effects on dividend payouts. Third, I examine the relation between tax uncertainty and the level of tax avoidance and find that tax-avoidance proxies do not capture underlying tax uncertainty. Finally, I study share repurchases as an alternative distribution channel (Skinner 2008). The effect of tax uncertainty on share repurchases is negative but weaker, which is in line with the argument that firms can adjust share repurchases more easily than dividend payouts (Jagannathan, Stephens, and Weisbach 2000).

My findings contribute to several streams of research and increase our understanding of interactions between uncertain tax avoidance and a firm's financial ecosystem. First, the negative effect of tax uncertainty on dividend payouts constitutes a real effect of tax avoidance and thus answers the call for research in Hanlon and Heitzman (2010). Together with the finding that volatility in tax payments has a negative effect on investment (Jacob et al. 2016), my results suggest that uncertain tax-avoidance strategies induce non-tax costs on shareholders. As investors select firms based on their payout policy (Desai and Jin 2011), uncertain tax avoidance might distort these decisions.

Second, my findings add to a growing stream of research that examines determinants and consequences of tax uncertainty. I extend research by DeSimone, Mills, and Stomberg (2016) and Guenther et al. (2017), who find that tax uncertainty does not increase in the level of tax avoidance. In this regard, my findings suggest that analyses of real effects of tax avoidance have to segregate the level and the uncertainty of tax payments to identify the driver of an effect. Thus, the finding that shareholders benefit from tax avoidance (Goh et al. 2016) might not exclusively result from lower tax payments but also from a lack of uncertainty in these payments.

Third, my findings contribute to research on the determinants of dividend payouts (Chay and Suh 2009, Hoberg, Philipps, and Prabhala 2014) and suggest that tax uncertainty induces cross-sectional variation in the probability and the amount of dividend payouts. These findings should interest managers and shareholders as adverse effects of tax uncertainty on after-tax earnings are likely to affect dividend payouts. Further, my findings are relevant to legislators and suggest that initiatives to reduce volatility in tax payments (e.g., the U.S. Compliance Assurance Process; Beck and Lisowsky 2014) might increase the distribution potential of firms.

The remainder of the paper is organized as follows. Section 2 discusses prior research and develops testable hypotheses. Section 3 presents the sample selection and the research design. Section 4 discusses the baseline results. Section 5 presents results for robustness tests and supplementary analyses. Section 6 summarizes my main findings and concludes.

2. Theoretical Background and Hypothesis Development

2.1. Determinants of Dividend Payouts

Dividend payouts are a strategic tool in capital market economies. In 2014, firms listed on the S&P 500 distributed more than $900 billion to their shareholders, with motives for dividend payouts differing across firms. Starting with the seminal paper by Miller and Modigliani (1961) showing that dividends do not affect investment and firm value, research has identified several determinants of dividend payouts (see Allen and Michaely (2003) and Farre-

Mensa et al. (2014) for reviews).[2] First, firms distribute dividends to alleviate agency conflicts between managers and shareholders. Excess cash holdings enable managers to privately divert funds (Jensen and Meckling 1976) or to engage in suboptimal investment (Jensen 1986). In this regard, dividend payouts constitute a disciplining device and managers are forced to raise funds under external scrutiny (Easterbrook 1984). In line with this argument, Officer (2011) finds that firms prone to agency conflicts exhibit higher dividend-initiation-announcement returns.

Second, firms distribute dividends to convey privately-held information to the capital market (Bhattacharya 1979, John and Williams 1985, Miller and Rock 1985). Due to information asymmetries between managers and shareholders, dividend payouts reveal private information and provide a signal for managers' earnings expectations. Consistent with this argument, Grullon, Michaely, and Swaminathan (2002) find positive abnormal returns for dividend increases, while dividend reductions are heavily punished by capital markets.

Third, firms distribute dividends due to a lack of investment opportunities. A limited investment set reduces cash requirements and raises the distribution potential (Smith and Watts 1992). Based on this argument, DeAngelo et al. (2006) analyze the financial life-cycle theory and document a higher likelihood of dividend payouts for more mature firms. Chay and Suh (2009) investigate a risk-based argument and find a negative relation between cash-flow uncertainty and dividend payouts. Firms with large investment sets and uncertain cash flows adjust dividend payouts to avoid external financing and dividend reductions (Lintner 1956).

Fourth, firms distribute dividends due to the relative investor-level tax on dividend payouts (Poterba 2004). In this regard, several studies examine the dividend tax cut introduced

[2] Miller and Modigliani (1961) assume complete and perfect markets that rest on the following assumptions: (i) no taxes, (ii) symmetric information among market participants, (iii) complete contracting, (iv) no transaction costs, (v) competitive product and financial markets, and (vi) rational investors and managers (Farre-Mensa et al. 2014).

by the Jobs and Growth Tax Relief Reconciliation Act of 2003 and find that firms dominated by individual investors experienced the largest increase in dividend payouts (Chetty and Saez 2005, Blouin, Ready, and Shackelford 2004). In addition, Desai and Jin (2011) study different investor classes and document that investors tend to invest in a firm based on its payout policy. At the same time, managers adjust dividend payouts to cater for investors' tax preferences.

2.2. Tax Uncertainty as the Second Dimension of a Firm's Tax-Avoidance Strategy

Cash savings in the form of lower tax payments incentivize firms to engage in tax avoidance (Edwards et al. 2016). Aside from this benefit, "grey area" tax avoidance might induce uncertainty which results from tax positions characterized by ex-ante uncertainty and a high likelihood of being challenged in a tax audit (Dyreng et al. 2016). Common examples of "grey area" tax avoidance are the application of ambiguous tax rules or legislation, and discretion in setting intra-group transfer prices. Although initially reducing tax payments, "grey area" tax avoidance raises IRS scrutiny and audit risk (Mills 1998). In case the IRS challenges a tax position, the firm might become liable for tax repayments, interest charges, and fines.

Several public cases indicate that the disputed amounts and the cash effects of "grey area" tax avoidance could be economically significant. In 2006, GlaxoSmithKline Inc., for instance, settled a transfer-pricing dispute with the IRS. Being the largest dispute in the history of the IRS (IRS 2006), this settlement included fiscal years 1989-2005 and led to tax repayments of $3.4 billion and an abandoned claim of $1.8 billion. In a similar case, the Canadian tax authorities accused Cameco Corp. of having engaged in "grey area" tax avoidance via intra-group transfer pricing and claimed tax repayments of $2.1 billion (Livesey 2016).[3]

[3] GlaxoSmithKline Inc. engaged in income shifting through tax-deductable intra-group payments on intangible assets and trademarks. These payments reduced tax payments in the U.S. (IRS 2006). Cameco Corp. used a similar

Tax uncertainty is not driven by a firm's tax-avoidance strategies alone but might depend on country-specific factors that are not directly under a firm's control (e.g., tax enforcement, the rule of law, audit cycle and effort, etc.). Current developments in the European Union support this argument, as the EU Commission has started to tackle initially certain tax positions through state aid regulation. These rules prohibit EU member states from granting selective economic benefits to firms.[4] Thus far, the EU Commission has qualified two tax rulings in Luxembourg and the Netherlands respectively as illegal state aid, leading to tax repayments of $20-30 million (EU Commission 2015a). In a recent decision, the EU Commission accused Apple Inc. of having avoided $13 billion through tax rulings in Ireland (EU Commission 2016).[5] By challenging initially certain tax positions taken by a firm, these decisions increase tax uncertainty and contribute to volatility in tax payments over time.

Prior research has examined the concept of tax uncertainty and provides some evidence for potential economic effects. Hanlon et al. (2017), for instance, examine cash holdings and find that firms with uncertain tax positions hold more precautionary cash. Hasan, Hoi, Wu, and Zhang (2014) investigate debt contracts and show that the cost of debt increases with the level of tax avoidance. Consistent with Hanlon et al. (2017), Hasan et al. (2014) argue that tax uncertainty increases in the level of tax avoidance and therefore measure tax uncertainty with proxies for the level of tax avoidance (e.g., cash or GAAP ETRs, book-tax differences (BTDs), and UTBs).

---

strategy and set a low intra-group transfer price for uranium sold by a Canadian subsidiary to a Swiss letter-box company. This diminished the Canadian tax base and increased profits in the low-tax Canton of Zug (Livesey 2016).

[4] To examine whether a tax benefit constitutes illegal state aid, the EU Commission has to imitate an investigation procedure. If the EU Commission qualifies a tax benefit as state aid, tax authorities have to recover the benefit. Tax authorities and countries, however, may appeal against the decision of the EU Commission at the European Court of Justice (see Lang, Pistone, Schuch, and Staringer (2015, pp. 121–130) for further information).

[5] In its 2015 financial statements, Apple discussed potential effects of this decision on its after-tax cash flows by stating that if "… the European Commission were to conclude against Ireland, it could require Ireland to recover from the Company past taxes covering a period of up to 10 years reflective of the disallowed state aid, and such amount could be material." An investigation of McDonald's Corp.'s tax positions in Luxembourg is still ongoing with the EU Commission (EU Commission 2015b).

Several recent studies, in contrast, suggest that tax uncertainty is unrelated to the level of tax avoidance. Benefits of tax avoidance in the form of cash savings (Mills 1998, Edwards et al. 2016) or reduced leverage (Graham and Tucker 2006) do not necessarily induce greater tax uncertainty. This follows from the argument that firms could engage in tax-avoidance strategies that reduce tax payments without increasing tax uncertainty (e.g., benign tax avoidance through R&D tax credits, accelerated depreciation, etc.). In this regard, Guenther et al. (2017) show that low cash ETRs are more persistent over time than high cash ETRs and that the level of tax avoidance is unrelated to future volatility in tax payments. Hutchens and Rego (2015) explore the relation between tax uncertainty and overall firm risk more closely. Their findings suggest that overall firm risk is unrelated to the level of tax avoidance but increases with tax uncertainty. Drake et al. (2017) examine value implications and find that tax uncertainty mitigates the positive valuation of tax avoidance. With regard to firm-level investment, Jacob et al. (2016) document that tax uncertainty delays large capital investment and reduces capital expenditures.

2.3. Hypothesis Development

The discussion in the previous section suggests that tax uncertainty affects firms and their operations. Firms with greater tax uncertainty have a higher probability of unexpected tax payments; this leads to volatile tax payments over time and impairs the persistence and predictability of after-tax cash flows. Anecdotal evidence suggests that managers are aware of the negative effects of tax uncertainty on after-tax cash flows. A recent Financial Times report, for instance, indicates that the number of U.S. firms that alert their investors to the likelihood of higher and more volatile tax payments has significantly increased. 136 U.S. firms, including prominent examples such as LinkedIn Corp. and Yahoo Inc., issued an alert in their 2015 financial statements (Houlder 2016). These firms expect that tax uncertainty adversely affects after-tax earnings as well as cash flows available for dividend payouts.

On a theoretical level, two arguments suggest that tax uncertainty, through the channel of cash-flow uncertainty, affects decisions to distribute dividends. First, information asymmetries between managers and investors imply differences in the costs of internal and external financing. Internal financing (e.g., through retained earnings) is less costly than raising capital in external financial markets (Myers and Majluf 1984). In a dividend-payout decision, managers forecast cash requirements to avoid liquidity shortfalls and costly external financing (Chay and Suh 2009). As cash-flow uncertainty increases the likelihood of liquidity shortfalls (Lintner 1956), firms with greater tax uncertainty are expected to exhibit a lower probability of dividend payouts.

Second, dividend payouts enable investors to form earnings expectations. A reduction in dividend payouts affects these expectations (Healy and Palepu 1988), leading to capital-market punishment (Michaely et al. 1995, Grullon et al. 2002). Managers are, therefore, reluctant to reduce dividend payouts and aim to distribute persistent dividend levels over time. Moreover, managers initiate dividend payouts only if they are confident of maintaining the dividend level. As cash-flow uncertainty impairs the persistence and predictability of after-tax cash flows, tax uncertainty reduces the probability of persistent dividend levels. This suggests that firms with greater tax uncertainty are less likely to distribute dividends.

Taken together, tax uncertainty raises the likelihood of liquidity shortfalls and dividend reductions. As both effects impose costs in the form of external financing and negative capital market reactions, greater tax uncertainty is expected to reduce the probability of dividend payouts. Based on these arguments, I state the following alternative hypothesis for the effect of tax uncertainty on a firm’s decision to distribute dividends:

H1: Tax uncertainty reduces the probability of dividend payouts.

The effect under H1 rests on the argument that liquidity shortfalls require costly external financing. Prior research suggests that a firm's capital-market access shapes the costs of obtaining external funds. In this regard, financially constrained firms face difficulty in accessing capital markets, raising the costs of external financing (Whited and Wu 2006, Denis and Sibilkov 2010, Edwards et al. 2016). Higher costs of external financing increase the relevance of cash-flow uncertainty for the decision to distribute dividends, which suggests a stronger effect of tax uncertainty for financially constrained firms. Based on this argument, I state the following cross-sectional hypothesis for the effect of tax uncertainty on a firm's decision to distribute dividends:

H1a: The effect of tax uncertainty on the probability of dividend payouts is stronger for financially constrained firms.

Given the diverse determinants of a firm's decision to distribute dividends, the hypothesized effect of tax uncertainty is expected to vary according to the motives for dividend payouts. In this regard, institutional investors act as an external governance device and allow a payout policy that alleviates agency conflicts between managers and shareholders. Thus, for firms with high institutional ownership, the benefit of alleviating agency conflicts mitigates the costs of cash-flow uncertainty (Allen et al. 2000, Leary and Michaely 2011).[6] This suggests a weaker effect of tax uncertainty on the probability of dividend payouts for these firms. Based on this argument, I state the following cross-sectional hypothesis for the effect of tax uncertainty on a firm's decision to distribute dividends:

[6] It remains an unresolved question in theoretical and empirical research as to whether dividend payouts and institutional ownership are complements or substitutes (Farre-Mensa et al. 2014). In both cases, cash-flow uncertainty seems less relevant for firms with high institutional ownership, as agency aspects dominate the trade-off between retaining and distributing after-tax cash flows.

H1b: The effect of tax uncertainty on the probability of dividend payouts is weaker for firms with high institutional ownership.

Tax uncertainty, through the channel of cash-flow uncertainty, might affect not only the decision to distribute dividends but also the amount of dividend payouts. To ensure persistent dividend levels over time, managers accommodate tax uncertainty by adjusting present dividend payouts. This adjustment avoids costly external financing and capital-market punishment (Chay and Suh 2009). Based on this argument, I state the following alternative hypothesis for the effect of tax uncertainty on dividend levels:

H2: Tax uncertainty reduces the amount of dividend payouts.

The effect under H2 assumes that dividend reductions are punished by capital markets. In this regard, the financial life-cycle theory predicts differences in the costs of dividend reductions across firms (Leary and Michaely 2011). Mature firms susceptible to agency conflicts exhibit high costs of dividend reductions, while young and growing firms at the point of capital infusion are more flexible in adjusting their dividend payouts. Lower costs of dividend reductions diminish the relevance of cash-flow uncertainty for dividend levels, which suggests a weaker effect of tax uncertainty for firms at the capital-infusion stage. Based on this argument, I state the following cross-sectional hypothesis for the effect of tax uncertainty on dividend levels:

H2a: The effect of tax uncertainty on the amount of dividend payouts is weaker for firms at the capital-infusion stage.

Notwithstanding these hypotheses, several arguments suggest that I might not find an effect of tax uncertainty on dividend payouts. First, Jacob et al. (2016) show that firms with high tax uncertainty delay large capital investments. Thus, instead of adjusting dividend payouts and incurring capital-market punishment, managers might alter investments to ensure persistent dividend levels. Second, volatile tax payments might result from benign tax-avoidance strategies associated with firm-level investment (e.g., R&D tax credits, accelerated depreciation; see Guenther et al. 2017). This source of volatility in tax payments might not affect dividend payouts beyond operating uncertainty. Third, tax uncertainty might be immaterial as compared to operating uncertainty. If operating uncertainty is the main driver of cash-flow uncertainty, I might not find large-sample evidence for an effect of tax uncertainty. Based on these arguments, I contend that the effect of tax uncertainty on dividend payouts is an empirical question.

3. Data and Research Design

3.1. Sample Selection

I obtain a sample of firm-year observations for fiscal years 1993-2014 with data available in COMPUSTAT Industrial. To ensure consistent accounting rules for income taxes, I start in 1993 as ASC 740 (formerly SFAS No. 109), which changed the accounting for income taxes, became effective for fiscal years starting after December 15, 1992.[7] As the measure for tax uncertainty and some control variables require five prior years of data, the sample effectively covers fiscal years 1998-2014. I drop non-U.S. firms to avoid effects of differences in legal systems and financial reporting standards. I also eliminate financial firms (SIC codes 6000-6999) and utilities (SIC codes 4900-4949) due to distinct financial accounting rules (McGuire et al. 2013), tax-avoidance incentives (Hanlon et al. 2017), and dividend payout patterns in these industries (Fama and French 2001). In addition, I drop firms with “LP” or “TRUST” in their

[7] Although ASC 740 did not alter the calculation of cash taxes paid, prior research suggests that firms strategically respond to tax law changes (e.g., firms engage in intertemporal income shifting; Scholes, Wilson, and Wolfson 1992, Guenther 1994, Maydew 1997). This behavior could affect ETRs as a basis for the tax-uncertainty measure.

name to exclude flow-through entities not subject to firm-level taxes (Dyreng et al. 2008). These restrictions result in 125,817 firm-years (13,526 firms).

Further, I drop observations with dividends greater than sales, negative dividends, negative sales, and equity below $250,000 or total assets below $500,000 to be consistent with prior research (Chay and Suh 2009, Hoberg et al. 2014). I also drop observations with missing data to calculate the measure for tax uncertainty and several control variables.[8] These restrictions yield a full sample of 32,730 firm-year observations (4,513 firms). To obtain a subsample of dividend-paying firms, I eliminate observations with zero dividend payouts. This leaves a subsample of 13,594 firm-years (1,822 firms). Table 1 presents the sample selection procedure.

INSERT TABLE 1 HERE

3.2. Variable Measurement

I follow prior research (DeAngelo et al. 2006, Chay and Suh 2009, Hail, Tahoun, and Wang 2014, Hoberg et al. 2014) and use two measures for dividend payouts (*DIV*). First, to examine the probability of dividend payouts, *DIV* is an indicator variable with the value of one if a firm declares dividends on common stock in year *t*, and zero otherwise. Second, for the subsample of dividend-paying firms, *DIV* is the logarithm of dividends declared on common stock in year *t* and scaled by total assets at the end of year *t* (Desai and Jin 2011, Hoberg et al. 2014).[9] In additional tests, I scale dividends declared in year *t* by total sales in year *t*.

[8] The measure for tax uncertainty requires five consecutive annual cash ETRs (McGuire et al. 2013, Guenther et al. 2017). I calculate annual cash ETRs as cash taxes paid divided by pre-tax book income less special items. To avoid a data truncation bias due to dropping loss firms (Henry and Sansing 2014), I follow Jacob et al. (2016) and set annual cash ETRs to 1 in case of a positive numerator and a negative denominator (i.e. tax payments in a loss year) and to 0 in case of a negative numerator and a negative denominator (i.e. tax refund in a loss year). In supplementary analysis, I require a positive denominator and non-missing values in each year and winsorize annual cash ETRs at 1 and 0 (Hutchens and Rego 2015). In Section 5.1.1, results are qualitatively unchanged.

[9] I use the logarithm as the variable is positively skewed. Results are unchanged without using the logarithm.

To measure tax uncertainty (*TAX_UNCERTAINTY)*, I calculate the coefficient of variation of annual cash ETRs over the five-year period *t-4* to *t* (McGuire et al. 2013, Jacob et al. 2016).[10] This is an intuitive measure for tax uncertainty, as uncertain tax positions lead to more volatile tax payments over time and thus to higher *TAX_UNCERTAINTY* (Neuman 2016). Firms with persistent tax payments, in contrast, exhibit a narrow range of annual cash ETRs and lower *TAX_UNCERTAINTY*. In this regard, Guenther et al. (2017) and Hutchens and Rego (2015) show that measures based on annual cash ETRs capture uncertainty associated with a firm's tax positions. This finding provides support for the construct validity of *TAX_UNCERTAINTY.*

Several arguments suggest that a measure based on past cash ETRs is a suitable proxy for tax uncertainty. First, cash ETRs are affected by financial reporting incentives and tax accruals management to a lesser extent than ex-ante measures for tax uncertainty (e.g., UTBs; Robinson et al. 2015). Second, cash ETRs capture tax-avoidance strategies that result in cash savings (Dyreng et al. 2008, Edwards et al. 2016) as well as in unexpected tax payments. Third, a cash-based measure provides a more direct conceptual link to dividend payouts than income-based measures (e.g., GAAP ETRs). Fourth, volatility in past cash ETRs predicts future tax uncertainty (Drake et al. 2017), which enables managers to form expectations about tax uncertainty and to incorporate this information in a dividend-payout decision. Fifth, a long-run measure alleviates concerns that managerial decisions correlated with dividend payouts (e.g., investment) might affect the tax-uncertainty measure (Klassen and Laplante 2012).

I follow Dyreng et al. (2008) and calculate long-run cash ETRs (*CASH_ETR*) to measure the level of tax avoidance. I multiply *CASH_ETR* by negative one so that larger values represent

[10] In comparison to cash ETR volatility (i.e. the standard deviation of annual cash ETRs), the coefficient of variation is normalized by the underlying mean cash ETR and thus unaffected by the level of tax avoidance. Results are qualitatively unchanged when using cash ETR volatility as a measure for tax uncertainty.

higher levels of tax avoidance. *CASH_ETR* and *TAX_UNCERTAINTY* segregate (i) the level and (ii) the uncertainty of tax payments as the two dimensions of a firm's tax avoidance strategy.

3.3. Research Design

To test my hypotheses, I estimate the following firm-level regression:

$$DIV_{it} = \alpha + \beta_1 TAX\_UNCERTAINTY_{it-4;t} + \beta_2 CASH\_ETR_{it-4;t} + \beta_3 CASH\_FLOW_{it} + \beta_4 SD\_CASH\_FLOW_{it-4;t} + \beta_5 CASH_{it} + \beta_6 MTB_{it} + \beta_7 SALES\_GROWTH_{it-2;t} + \beta_8 ASSET\_GROWTH_{it} + \beta_9 RE\_TE_{it} + \beta_{10} AGE_{it} + \beta_{11} SIZE_{it} + \beta_{12} LEVERAGE_{it} + \beta_{13} NOL_{it} + \beta_{14} R\&D_{it} + \beta_{15} SGA_{it} + \beta_{16} ADVERTISING_{it} + \beta_{17} CAP\_INTENSITY_{it} + YEAR\_FE + INDUSTRY\_FE + \varepsilon_{it} \quad (1)$$

I estimate logit regressions to examine the probability of dividend payouts and OLS regressions to investigate dividend levels.[11] The dependent variable, *DIV*, is one of the two measures for dividend payouts. β_1 is the coefficient of interest and captures the incremental effect of *TAX_UNCERTAINTY* on a firm's decision to distribute dividends (H1) and the amount of dividend payouts (H2). Consistent with H1 and H2, I expect $\beta_1 < 0$ in both specifications. I include *CASH_ETR* to control for the level of tax avoidance.

In addition to measures for tax uncertainty and the level of tax avoidance, I include several variables to control for determinants of dividend payouts. First, I add net operating cash flows adjusted for cash taxes paid in year *t* over total assets in year *t-1* (*CASH_FLOW*) to control for the availability of internal funds.[12] Firms with sufficient internal funds have a larger distribution potential (Fama and French 2001). Second, I add the volatility of *CASH_FLOW* over the five-year period *t-4* to *t* (*SD_CASH_FLOW*) to control for cash-flow uncertainty induced by

[11] In line with prior research (Chay and Suh 2009, Hoberg et al. 2014), I use a set of determinants for tests that examine (i) a firm's decision to distribute dividends as well as (ii) the amount of dividend payouts.
[12] I adjust net operating cash flows for cash taxes paid. Thus, *SD_CASH_FLOW* captures volatility in after-tax cash flows that is unaffected by volatility in tax payments.

operating uncertainty. Firms with volatile cash flows exhibit lower dividend payouts (Chay and Suh 2009).[13]

Third, I control for a firm's investment opportunities. To this end, I include *CASH* as cash holdings scaled by total assets in year *t, MTB* as the market-to-book ratio in year *t* (Desai and Jin 2011), *SALES_GROWTH* as the three-year sales growth from year *t-2* to year *t* (Jacob and Jacob 2013), and *ASSET_GROWTH* as the growth in total assets from year *t-1* to year *t* (Hoberg et al. 2014). Firms with sizeable investment opportunities require more cash, which reduces the distribution potential (Fama and French 2001, DeAngelo et al. 2006).[14] Fourth, I control for the financial life-cycle theory of dividend payouts. To this end, I include *RE_TE* as retained earnings divided by shareholder equity in year *t* (DeAngelo et al. 2006), *AGE* as the logarithm of firm age in year *t* (Hadlock and Pierce 2010), and *SIZE* as the logarithm of total assets in year *t*.

Fifth, I include *LEVERAGE* as long-term debt divided by total assets in year *t* to capture agency aspects of dividend payouts. Creditors mitigate agency conflicts between managers and shareholders reducing the need of dividend payouts (Jensen 1986). Sixth, I control for benign tax-avoidance strategies that might affect dividend payouts without inducing uncertainty in a firm's tax positions (Guenther et al. 2017). To this end, I include *NOL* as the amount of tax loss carry forward, *R&D* as research and development expense, *SGA* as selling, general, and administrative expense, *ADVERTISING* as advertising expense, and *CAP_INTENSITY* as capital intensity (Graham and Tucker 2006, Neuman et al. 2016). I measure all variables in year *t* scaled

[13] Further, *SD_CASH_FLOW* captures economic uncertainty as a dimension of tax uncertainty that does not result in volatile tax payments but contributes to volatility in operating cash flows (Neuman, Omer, and Schmidt 2016). In supplementary analyses, I show that the effect of *TAX_UNCERTAINTY* is independent from cash-flow uncertainty induced by operating uncertainty (see Section 5.3).

[14] The relation between cash holdings and dividend payouts is unclear. Firms hold cash for investment purposes and precautionary reasons (Bates, Kahle, and Stulz 2009), which predicts a negative effect on dividend payouts. Agency aspects, in contrast, suggest that firms with high cash holdings distribute more dividends (Easterbrook 1984).

by total assets in year *t-1*. Finally, I include year and industry-fixed effects to account for year shocks and time-invariant industry characteristics.[15]

Unless indicated otherwise, I winsorize all continuous variables at the 1st and 99th percentile to mitigate the effect of outliers. I estimate heteroscedasticity-robust standard errors clustered by firm to account for serial correlation in the data (Petersen 2009). To facilitate a meaningful comparison of variables, I standardize independent variables to have a mean of zero and a standard deviation of one prior to fitting regressions.

4. Results

4.1. Descriptive Statistics

Table 2 presents descriptive statistics. Columns 1-6 show statistics for the full sample and columns 7 and 8 for dividend-paying and non-dividend-paying firms, respectively. 41.5 percent of the firm-years in the full sample concern dividend payouts, which amount to 2.7 percent of total assets for the average dividend-paying firm (column 7). The mean of *TAX_UNCERTAINTY* is 0.64 and lies between the values reported in McGuire et al. (2013) and Jacob et al. (2016). Mean *CASH_ETR* is 28.4 percent and in line with prior research (Guenther et al. 2017).

The remaining determinants are of reasonable magnitude. Firms that distribute dividends have lower cash-flow uncertainty induced by operating uncertainty (*SD_CASH_FLOW*), lower cash holdings (*CASH*), lower sales (*SALES_GROWTH*) and asset growth (*ASSET_GROWTH*), a lower amount of tax loss carry forward (*NOL*), lower research and development expense (*R&D*), and lower selling, general, and administrative expense (*SGA*, all $p < 0.01$). In contrast, dividend-paying firms have larger cash flows (*CASH_FLOW*), a higher market-to-book ratio (*MTB*), more

[15] Industry-fixed effects are based on the Fama and French 17 industry classification, available on Kenneth French's website (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_17_ind_port.html).

retained earnings (*RE_TE*), more long-term debt (*LEVERAGE*), a higher capital intensity (*CAP_INTENSITY*), and are older (*AGE*) and larger in size (*SIZE*). The subsamples, however, do not differ in the level of tax avoidance (*CASH_ETR*, p = 0.73) and advertising expense (*ADVERTISING*, p = 0.52).

INSERT TABLE 2 HERE

Table 3 presents univariate correlations. *DIV* is negatively correlated with *TAX_UNCERTAINTY* ($p < 0.01$). Further, *DIV* is negatively associated with *SD_CASH_FLOW, CASH*, *SALES_GROWTH*, *ASSET_GROWTH*, *NOL*, *R&D*, and *SGA* and positively related to *CASH_FLOW, MTB*, *RE_TE, AGE, SIZE, LEVERAGE,* and *CAP_INTENSITY* (all $p < 0.01$). These correlations are generally consistent with prior research (Hoberg et al. 2014).

INSERT TABLE 3 HERE

4.2. Tax Uncertainty and the Probability of Dividend Payouts

H1 predicts that tax uncertainty reduces the probability of dividend payouts. Table 4 presents results for logit regressions based on Equation (1) that examine the effect of tax uncertainty on a firm's decision to distribute dividends. Both specifications include the full sample of dividend-paying and non-dividend-paying firms. In column 1, the coefficient on *TAX_UNCERTAINTY* is negative and significant ($p < 0.01$). This result suggests that tax uncertainty negatively affects the likelihood of dividend payouts, which is consistent with H1. In column 3, including the set of determinants yields qualitatively similar results.

With respect to the remaining determinants, I find that the probability of dividend payouts decreases with cash-flow uncertainty induced by operating uncertainty (*SD_CASH_FLOW*), sales (*SALES_GROWTH*) and asset growth (*ASSET_GROWTH*), long-term debt (*LEVERAGE*), the amount of tax loss carry forward (*NOL*), and research and development expense (*R&D*). In contrast, the probability of dividend payouts is positively related to cash flows (*CASH_FLOW*), retained earnings (*RE_TE*), the market-to-book-ratio (*MTB*), capital intensity (*CAP_INTENSITY*), and firm age (*AGE*) and size (*SIZE*, all $p < 0.01$). These results are fairly in line with prior research (DeAngelo et al. 2006, Hoberg et al. 2014).

I present marginal effects to assess the economic significance of these results. In column 4, the marginal effect of *TAX_UNCERTAINTY* indicates that a one standard deviation higher tax uncertainty reduces the probability of dividend payouts by 9.9 percentage points. Given the unconditional probability of dividend payouts is 41.5 percent, this effect marks a decrease of 23.9 percent (9.9/41.5). This effect is comparable to non-tax determinants (e.g., *RE_TE*, *CAP_INTESITY*), which seems reasonable as tax payments represent a major share of after-tax cash flows (e.g., up to 35 percent for U.S. firms) where uncertainty is difficult to hedge. A likelihood ratio test indicates that including *TAX_UNCERTAINTY* as an independent variable improves the fit of the regression model ($\chi^2 = 538.89$, $p < 0.01$). Taken together, these results support H1 and suggest that firms with greater tax uncertainty are less likely to distribute dividends. Further, tax uncertainty is an economically relevant determinant of this decision.

INSERT TABLE 4 HERE

4.3. The Effect of Tax Uncertainty and Financial Constraints

The first cross-sectional hypothesis predicts that the effect of tax uncertainty on the probability of dividend payouts is stronger for financially-constrained firms. To test H1a, I form two subsamples based on whether a firm exhibits financial constraints. I classify a firm without an S&P Issuer Credit Rating as financially constrained *(CONSTRAINTS=1)*.[16] Unrated firms lack access to public debt markets (Faulkender and Petersen 2006) and are more opaque than rated firms (Whited 1992). This raises the costs of obtaining external funds and leads to financial constraints. For each subsample, I estimate logit regressions based on Equation (1).[17]

Table 5, columns 1-2 present results for firms with *CONSTRAINTS=0* and columns 3-4 results for firms with *CONSTRAINTS=1*. For both subsamples, the coefficient on *TAX_UNCERTAINTY* is negative and significant ($p < 0.01$). However, I test and find that the coefficient on *TAX_UNCERTAINTY* in column 3 is larger than in column 1 ($p = 0.01$).[18] Taken together, these results support H1a and suggest that tax uncertainty is more relevant for dividend payouts of financially constrained firms. Furthermore, these tests provide evidence that tax uncertainty affects dividend payouts through the channel of cash-flow uncertainty.

INSERT TABLE 5 HERE

4.4. The Effect of Tax Uncertainty and Institutional Ownership

The second cross-sectional hypothesis predicts that the effect of tax uncertainty on the probability of dividend payouts is weaker for firms with high institutional ownership. To test this prediction, I form two subsamples based on the proportion of a firm's shares held by institutional investors. I obtain ownership data from the Thomson Reuters Institutional (13f) Holdings

[16] Results are qualitatively unchanged if I classify a firm without a credit rating or with a non-investment grade credit rating (i.e. below BBB-) as financially constrained.

[17] Other measures for financial constraints are indices based on firm characteristics (see Farre-Mensa and Ljungqvist 2016). As these indices include either an indicator variable for dividend payouts (e.g., Kaplan-Zingales-Index or Whited-Wu-Index) or firm characteristics that are highly correlated with dividend payouts (e.g., firm age and size; Hadlock-Pierce-Index), I do not apply these measures in my setting.

[18] Comparing coefficients of logit regressions could lead to biased inferences if the residual variance differs between subsamples (Allison 1999). To this end, I use a fully-interacted model and interact all independent variables with an indicator variable that identifies the two subsamples (*CONSTRAINTS*). I test whether the coefficient on the interaction term *TAX_UNCERTAINTY#CONSTRAINTS* is different from zero. This approach allows coefficients on independent variables to differ in each subsample and accounts for heteroscedasticity.

Database, which reduces the sample size to 22,169 firm-years. I classify a firm with institutional ownership above the annual median as having high institutional ownership (*HIGH_INST=1*). For each subsample, I estimate logit regressions based on Equation (1).

Table 6, columns 1-2 present results for firms with *HIGH_INST=0* and columns 3-4 results for firms with *HIGH_INST=1*. For both subsamples, the coefficient on *TAX_UNCERTAINTY* is negative and significant ($p < 0.01$). However, I test and find that the coefficient on *TAX_UNCERTAINTY* in column 3 is smaller than in column 1 ($p < 0.01$). Taken together, these results support H1b and suggest that tax uncertainty is less relevant for firms that distribute dividends based on agency aspects. As the effect of tax uncertainty varies with motives for dividend payouts, managers seemingly consider tax uncertainty in a dividend-payout decision.

INSERT TABLE 6 HERE

4.5. Tax Uncertainty and Dividend Levels

H2 predicts that tax uncertainty negatively affects dividend levels. Table 7 shows results for OLS regressions based on Equation (1) that examine the effect of tax uncertainty on the amount of dividend payouts. All three specifications include the subsample of dividend-paying firms. In column 1, the coefficient on *TAX_UNCERTAINTY* is negative and significant ($p < 0.01$), which is consistent with H2. In column 2, including the set of determinants yields similar results. To rule out the possibility that the scalar for dividend payouts affects my results, I re-estimate Equation (1) and scale dividend payouts by total sales. In column 3, the coefficient on *TAX_UNCERTAINTY* remains negative and significant ($p < 0.01$).

Results for remaining determinants are in line with the previous tests. Dividend payouts decrease with sales (*SALES_GROWTH,* $p < 0.01$) and asset growth (*ASSET_GROWTH,* $p < 0.01$), long-term debt (*LEVERAGE,* $p < 0.01$), and the amount of tax loss carry forward (*NOL,* $p = 0.07$), while dividend levels increase with cash flows (*CASH_FLOW,* $p < 0.01$), cash holdings (*CASH,* $p < 0.01$), the market-to-book ratio (*MTB,* $p < 0.01$), firm age (*AGE,* $p < 0.01$), advertising expense (*ADVERTISING,* $p = 0.03$), and capital intensity (*CAP_INTENSITY,* $p < 0.01$). In contrast to Table 4 but consistent with Hoberg et al. (2014), dividend levels decrease with firm size (*SIZE,* $p < 0.01$) and retained earnings (*RE_TE,* $p = 0.05$).

In column 2, the coefficient on *TAX_UNCERTAINTY* indicates that a one standard deviation higher tax uncertainty reduces the amount of dividend payouts by 10 percent.[19] For the average dividend-paying firm, this effect leads to a $23.6 million reduction in dividend payouts. Consistent with the previous tests, the effect of *TAX_UNCERTAINTY* is again comparable to non-tax determinants (e.g., *SALES_GROWTH, SIZE*). An incremental f-test indicates that adding *TAX_UNCERTAINTY* as an independent variable improves the fit of the regression model ($F = 38.45$, $p < 0.01$). Taken together, these results support H2 and suggest that firms with greater tax uncertainty exhibit a lower amount of dividend payouts. Furthermore, tax uncertainty is an economically important determinant of observable dividend levels.

INSERT TABLE 7 HERE

4.6. The Effect of Tax Uncertainty and a Firm's Life-Cycle Stage

The third cross-sectional hypothesis predicts that the effect of tax uncertainty on dividend levels is weaker for firms at the capital-infusion stage. DeAngelo et al. (2006) show that young and growing firms at the capital-infusion stage have lower retained earnings than more mature firms. Therefore, I form two subsamples based on the ratio of retained earnings to shareholder

[19] $e^{-0.105} - 1 = -10.0\%$.

equity and classify an observation with a ratio below the annual median as a firm at the capital-infusion stage (*GROWING=1*). For each subsample, I estimate OLS regressions based on Equation (1).

Table 8, column 1 presents results for firms with *GROWING=0* and column 2 results for firms with *GROWING=1*. I find a negative and significant coefficient on *TAX_UNCERTAINTY* ($p < 0.01$) for both subsamples. However, the coefficient on *TAX_UNCERTAINTY* in column 2 is smaller than in column 1 ($p = 0.03$).[20] Taken together, these results support H2a and suggest that tax uncertainty is less relevant for dividend levels of firms at the capital-infusion stage. Thus, the effect of tax uncertainty on the amount of dividend payouts varies with the costs of dividend reductions.

INSERT TABLE 8 HERE

5. Robustness Tests and Supplementary Analyses

5.1. Robustness Tests

5.1.1. Alternative Measures for Tax Uncertainty and Endogeneity Concerns

I conduct several tests to assess whether my baseline results are sensitive to the chosen measure for tax uncertainty. Table 9, Panel A (B) shows results for dividend-paying and non-dividend paying firms (for dividend-paying firms).[21] First, I examine the sample selection associated with *TAX_UNCERTAINTY*. In line with Guenther et al. (2017), I require five consecutive years of positive pre-tax book income to calculate annual cash ETRs. Although limiting the sample to profitable firms (Henry and Sansing 2014), the coefficient on

[20] I use a Chow (1960) test to assess whether OLS coefficients differ between subsamples.
[21] The sensitivity analyses in this section result in slightly different samples, which alters the number of observations for each test. For brevity, I report marginal effects instead of logit coefficients in Tables 9-10 and Tables 13-14.

TAX_UNCERTAINTY2 in column 1 is negative and significant ($p < 0.01$). This suggests that loss firms do not drive my results.

Second, I assess whether winsorizing annual cash ETRs at 1 and 0 might affect my results. To this end, I calculate *CV_TAX_ASSETS* as the coefficient of variation of the ratio of cash taxes paid divided by total assets over the five-year period *t-4* to *t*. In contrast to *TAX_UNCERTAINTY,* I do not winsorize annual ratios to exploit the undistorted distribution of tax payments. Consistent with my baseline results, the coefficient on *CV_TAX_ASSETS* in column 2 is negative and significant ($p < 0.01$). Thus, restricting annual cash ETRs to 1 and 0 does not alter my results.

Third, I test whether my results also hold for more extreme forms of tax uncertainty. In line with the hazard view of tax uncertainty, Saavedra (2017) shows that firms with large tax payments (i.e. less successful tax avoiders) exhibit greater tax uncertainty and a higher probability of unexpected tax payments in the future. I follow Saavedra (2017) and classify less successful tax avoiders (*LSTA*) as firms with an annual cash ETR and an average annual cash ETR larger than 0.6 in any of the years *t-4* to *t*. In column 3, the coefficient on *LSTA* is negative and significant ($p < 0.01$). Thus, my findings tend to hold for a somewhat narrower measure for tax uncertainty.

Fourth, I assess whether benign tax-avoidance strategies might affect my measure for tax uncertainty. These strategies induce volatility in tax payments that is known to managers or that stems from managerial decisions correlated with dividend payouts (e.g., investment). To separate these effects, I regress annual cash ETRs on ETR-determinants that do not induce tax uncertainty.[22] This captures volatility in tax payments due to past losses (*NOL*), tax credits for R&D (*R&D*), accelerated depreciation on tangible assets (*CAPEX*), and differences in statutory tax rates (*FOROPS*). I run these regressions by industry-year (based on 2-digit SIC codes) and measure tax uncertainty as the standard deviation of the residual (*RESID_TAX_UNCERTAINTY)*.[23] In a second stage, I run Equation (1) without variables from the first stage. In column 4, the coefficient on *RESID_TAX_UNCERTAINTY* is negative and significant ($p < 0.01$), which suggests that my results are neither driven by volatility in tax payments known to managers nor by managerial decisions correlated with dividend payouts.

Fifth, I address endogeneity concerns regarding the direction of causality of my baseline results. Reverse causality requires a feedback effect of dividend payouts on tax uncertainty. For instance, firms with low dividend levels might engage in "grey area" tax avoidance that generates cash savings but simultaneously induces tax uncertainty. Although *TAX_UNCERTAINTY* is a long-run measure that alleviates such concerns, I provide a formal 2-SLS instrumental variable analysis. In the first stage, I predict *TAX_UNCERTAINTY* using an OLS regression that includes an instrumental variable as well as the determinants from Equation (1). In the second stage, I run Equation (1) with fitted values for *TAX_UNCERTAINTY* obtained from the first-stage regression.[24]

I follow Hasan et al. (2014) and use mean tax uncertainty per industry-year (excluding the firm's own tax uncertainty) as an instrumental variable (*AV_TAX_UNCERTAINTY)*. This

---

[22] In the first-stage regression, I include the amount of tax loss carry forward (*NOL*), research and development expense (*R&D*), capital expenditures (*CAPEX*), and an indicator variable for foreign operations (*FOROPS*).
[23] I require a minimum of 15 observations in each industry-year (see Frank, Lynch, and Rego 2009).
[24] I do not include industry-fixed effects as the instrumental variable (*AV_TAX_UNCERTAINTY)* is an industry-level measure (Faccio, Marchica, and Mura 2011).

variable is seemingly exogenous from the standpoint of an individual firm.[25] To assess the validity of the instrument, I compute partial R^2 and partial f-statistics in the first-stage regression. In Panel A (B), these tests indicate that the instrument and *TAX_UNCERTAINTY* are highly correlated. Given a partial R^2 of 0.02 (0.02) and a partial f-statistic of 433.86 (108.25), I conclude that *AV_TAX_UNCERTAINTY* is an appropriate instrument (Staiger and Stock 1997). In column 5, results from the second-stage regression indicate that the coefficient on *TAX_UNCERTAINTY* remains negative and significant ($p < 0.01$ and 0.05). Taken together, these tests provide evidence that my baseline results are unaffected by endogeneity concerns.

INSERT TABLE 9 HERE

5.1.2. Further Robustness Tests

I conduct several tests to provide further evidence for the robustness of my baseline results. Table 10, columns 1-3 and columns 4-6 present results for tests on the initial full sample and on the initial subsample, respectively. First, I add firm-fixed effects to alleviate concerns that omitted time-invariant firm characteristics might affect my results. Although firm-fixed effects reduce the sample size for the logit regression, the coefficient on *TAX_UNCERTAINTY* in column 1 is negative and significant ($p < 0.01$).[26] In column 4, including firm-fixed effects in the OLS regression echoes my baseline results ($p < 0.01$). Next, I exclude fixed effects from the logit regression to address concerns raised by Greene (2004) with regard to fixed effects in nonlinear models. In column 2, results are in line with my baseline results ($p < 0.01$). For completeness, I exclude fixed effects from the OLS regression. Results in column 5 are unchanged ($p < 0.01$).

[25] I calculate *AV_TAX_UNCERTAINTY* based on 2-digit SIC codes. I require at least 15 observations in each industry-year to ensure that tax-avoidance strategies of individual firms do not drive industry-level tax uncertainty.
[26] Firm-fixed effects require within-firm variation in dividend payouts. Therefore, I drop firms that neither initiate nor omit dividend payouts during the sample period, which reduces the full sample to 9,991 firm-years.

Finally, I add alternative control variables for cash-flow uncertainty induced by operating uncertainty and firm size. I substitute *CASH_FLOW* with return-on-assets in year *t* (*ROA*). I also include the standard deviation of *ROA* over the five-year period *t-4* to *t* (*SD_ROA*) and the logarithm of market value of equity (*LN(MV)*). In columns 3 and 6, the coefficient on *TAX_UNCERTAINTY* is negative and significant ($p < 0.01$). Taken together, these tests suggest that neither time-invariant firm or industry characteristics nor a general time trend in dividend payouts affect my results. My inferences also hold with respect to several measures for tax uncertainty as well as alternative control variables.

INSERT TABLE 10 HERE

5.2. Tax Uncertainty and Changes in Dividend Payouts

5.2.1. Time-Series Tests

The analysis thus far has been mainly cross-sectional. In this section, I conduct time-series tests to analyze whether tax uncertainty affects changes in dividend payouts over time and present results in Table 11. First, I examine the decision to initiate dividends in year *t* if a firm does not distribute dividends in year *t-1*. The coefficient on *TAX_UNCERTAINTY* in column 1 is negative and significant ($p < 0.01$). In column 2, marginal effects indicate that a one standard deviation higher tax uncertainty reduces the probability of dividend initiations by 0.4 percentage points. As the unconditional probability of dividend initiations is 4.5 percent, this effect marks a decrease of 8.9 percent (0.4/4.5). In line with prior research (Hoberg et al. 2014), dividend-initiating firms have higher cash flows, more retained earnings, and are older and larger in size.

Second, I analyze the decision to omit dividends in year *t* if a firm distributes dividends in year *t-1*. In contrast to dividend initiations, the coefficient on *TAX_UNCERTAINTY* in column

3 is positive and significant ($p < 0.01$). In column 4, marginal effects show that a one standard deviation higher tax uncertainty increases the probability of dividend omissions by 0.8 percentage points. As the unconditional probability of omitting dividends is 4.3 percent, this effect marks an increase of 18.6 percent (0.8/4.3). Remaining determinates have opposite signs as in column 1. Thus, young and growing firms with high cash-flow uncertainty omit dividends.

Finally, I examine the decision to increase (decrease) dividends in year *t* if a firm distributes dividends in year *t-1*. For dividend increases, the coefficient on *TAX_UNCERTAINTY* in column 5 is negative and significant ($p < 0.01$). In column 6, marginal effects indicate that a one standard deviation higher tax uncertainty reduces the probability of dividend increases by 6.1 percentage points. Given an unconditional probability of dividend increases of 53.6 percent, this indicates a decrease of 11.4 percent (6.1/53.6). For dividend decreases, the coefficient on *TAX_UNCERTAINTY* in column 7 is positive but insignificant ($p = 0.26$). Taken together, these tests corroborate my baseline results and suggest that tax uncertainty affects changes in dividend payouts. Firms with greater tax uncertainty are less (more) likely to initiate and to increase (omit) dividend payouts.

INSERT TABLE 11 HERE

5.2.2. Tax Uncertainty and the 2003 Dividend Tax Cut

To provide further evidence for the effect of tax uncertainty on changes in dividend payouts over time, I examine the dividend tax cut instigated by the Jobs and Growth Tax Relief Reconciliation Act of 2003. This reform reduced the investor-level tax on individual dividend income providing an exogenous shock to a firm's payout policy (Chetty and Saez 2005). In line with the theoretical arguments above and the results derived thus far, I expect that firms with high tax uncertainty reacted less strongly to the reform than firms with low tax uncertainty.

I conduct two tests to examine this expectation and present results in Table 12. For two samples of firms with non-missing data, I compare dividend payouts in a three-year period prior to the dividend tax cut with those in a three-year period after the reform (fiscal years 1999-2001 and 2004-2006).[27] I modify Equation (1) and include indicator variables for the post-period (*POST*) and for firms with high tax uncertainty (*HIGH_TAX_UNCERTAINTY).* I classify a firm with tax uncertainty above the annual median in the pre-period as having high tax uncertainty. To achieve a difference-in-differences design, I interact *POST* with *HIGH_TAX_UNCERTAINTY*.

First, I analyze changes in the probability of dividend payouts for firms that do not distribute dividends in the fiscal year 1998. In column 1, the coefficient on *POST* is positive and significant ($p < 0.01$). Consistent with Chetty and Saez (2005), this result suggests that the probability of dividend payouts for initially non-dividend-paying firms increased after the reform. The coefficient on *HIGH_TAX_UNCERTAINTY#POST*, however, is negative and significant ($p = 0.03$). This result is consistent with the expectation that firms with high tax uncertainty reacted less strongly to the dividend tax cut.

Second, I examine whether dividend-paying firms altered the amount of dividend payouts in response to the reform. In column 3, the coefficient on *POST* is positive and significant ($p = 0.02$). Thus, dividend-paying firms increased their dividend levels after the reform. In contrast, the coefficient on *HIGH_TAX_UNCERTAINTY#POST* is again negative and significant ($p = 0.03$). This result suggests that firms with high tax uncertainty increased their dividend

[27] I do not include fiscal years 2002 and 2003 to exclude strategic responses of firms to the dividend tax cut and to rule out the possibility that fiscal years deviating from the calendar year might affect my results.

payouts less strongly than firms with low tax uncertainty. In untabulated tests, I repeat these analyses and use propensity score matching to account for potential endogeneity in identifying firms with high tax uncertainty.[28] Although reducing the sample sizes, inferences are unchanged.

Overall, these tests provide further evidence that tax uncertainty not only affects the probability and the amount of dividend payouts but also accounts for changes in dividend payouts over time. What is more, tax uncertainty moderates the effect of exogenous shocks (e.g., tax reforms) on a firm's payout policy.

INSERT TABLE 12 HERE

5.3. The Relation between Tax Uncertainty and Operating Uncertainty

Thus far, I have treated cash-flow uncertainty induced by operating uncertainty as a determinant of dividend payouts. In this section, I examine whether the effect of tax uncertainty on dividend payouts is independent from a firm's operating uncertainty to rule out the possibility that a spurious correlation between these two dimensions might drive my results (Jacob et al. 2016). To this end, I sort observations into annual quartiles of *SD_CASH_FLOW* and estimate Equation (1) for each quartile. Table 13, Panel A (B) presents results for the full sample of dividend-paying and non-dividend paying firms (for the subsample of dividend-paying firms).

Results indicate that tax uncertainty has a consistent negative effect on dividend payouts. The coefficient on *TAX_UNCERTAINTY* is negative and significant in seven out of eight specifications ($p < 0.01$) and does not increase across quartiles of operating uncertainty. In both Panels, the effect of tax uncertainty on dividend payouts is similar for firms with low (column 1)

[28] Propensity score matching entails constructing a control group (*HIGH_TAX_UNCERTAINTY=0*) that is similar to the treatment group (*HIGH_TAX_UNCERTAINTY=1*). For both samples, I conduct a one-to-one nearest neighbor matching without replacement based on all determinants in Equation (1). Hotellings T^2 tests, which jointly consider all determinants, suggest that subsamples for both tests do not differ from each other ($p = 0.95$ and 0.98).

and high operating uncertainty (column 4). Taken together, these results suggest that operating uncertainty does not drive the relation between tax uncertainty and dividend payouts. Thus, tax uncertainty is a dimension of overall firm risk that has distinct effects on dividend payouts.

INSERT TABLE 13 HERE

5.4. The Relation between Tax Uncertainty and the Level of Tax Payments

DeSimone et al. (2016), Guenther et al. (2017), and Saavedra (2017) find that firms might achieve low levels of tax payments (i.e. high tax avoidance) without experiencing an increase in tax uncertainty. Therefore, I examine whether the effect of tax uncertainty on dividend payouts varies with the level of tax avoidance. I follow the analysis in the previous section and estimate Equation (1) by quartiles of *CASH_ETR*. Table 14, Panel A (B) shows results for the full sample of dividend-paying and non-dividend paying firms (for the subsample of dividend-paying firms).

In both Panels, results indicate that the effect of tax uncertainty on dividend payouts varies with the level of tax avoidance. In column 1, the coefficient on *TAX_UNCERTAINTY* is insignificant for the highest level of tax avoidance ($p = 0.25$ and 0.50) but negative and significant for less tax avoidance (i.e. for higher tax payments and cash ETRs; all $p < 0.01$). Overall, these results suggest that the effect of tax uncertainty on dividend payouts does not increase with the level of tax avoidance. Thus, both dimensions of a firm's tax-avoidance strategy have distinct effects on dividend payouts where proxies for the level of tax avoidance do not capture underlying tax uncertainty.

INSERT TABLE 14 HERE

5.5. Tax Uncertainty and Share Repurchases

Share repurchases have become an increasingly important distribution channel for U.S. firms (Skinner 2008). As firms might repurchase shares without creating expectations among investors, share repurchases are more flexible than dividend payouts. This suggests that the costs for adjusting share repurchases are lower than for dividend payouts (Jagannathan et al. 2000). Therefore, I expect a negative but weaker effect of tax uncertainty on both the probability and the level of share repurchases. To test this expectation, I collect a full sample of repurchasing and non-repurchasing firms and a subsample of repurchasing firms. I estimate a logit regression based on Equation (1) to examine the probability of share repurchases and an OLS regression for the amount of share repurchases.

Table 15, columns 1-2 (column 3) show results for the full sample (for the subsample). In column 1, the coefficient on *TAX_UNCERTAINTY* is negative and significant ($p < 0.01$). Marginal effects in column 2 indicate that a one standard deviation higher tax uncertainty reduces the probability of share repurchases by 4.8 percentage points. As the unconditional probability of share repurchases is 55.5 percent, this effect marks a decrease of 8.6 percent (4.8/55.5). The coefficient on *TAX_UNCERTAINTY* in column 3 is also negative and significant. A one standard deviation higher tax uncertainty reduces the amount of share repurchases by 8 percent. For the average share-repurchasing firm, this effect results in a $22.5 million reduction in share repurchases. Results for remaining determinants are fairly consistent with prior research (Hoberg et al. 2014). Overall, these results suggest that tax uncertainty affects a firm's decision to repurchase shares and their amount. In line with the argument that share repurchases are more flexible, the effect of tax uncertainty on share repurchases is weaker than on dividend payouts.

INSERT TABLE 15 HERE

6. Conclusions

In this study, I investigate whether and to what extent tax uncertainty affects both a firm's decision to distribute dividends and their amount. Tax uncertainty contributes to overall cash-flow uncertainty and impairs the persistence and predictability of after-tax cash flows available for distribution. Based on this argument, I predict and find that tax uncertainty is negatively related to the probability of dividend payouts. This effect is stronger in the presence of financial constraints and weaker for firms that prioritize agency aspects of dividend payouts. In addition, I show that tax uncertainty reduces the amount of dividend payouts. Due to low costs of dividend reductions, this effect is weaker for young and growing firms at the capital-infusion stage.

The effect of tax uncertainty on dividend payouts is economically meaningful. A one standard deviation higher tax uncertainty results in a 9.9 percentage point lower probability and a $23.6 million reduction in dividend payouts. Supplementary tests suggest that tax uncertainty also contributes to changes in dividend payouts over time and moderates the effect of tax reforms (e.g., of the 2003 dividend tax cut) on a firm's payout policy. Thus, tax uncertainty is a relevant determinant of the decision to distribute dividends and of observable dividend levels.

Taken together, my findings increase our understanding of the likely effects of uncertain tax avoidance on a firm's financial ecosystem. First, the negative effect of tax uncertainty on dividend payouts constitutes a real effect of tax avoidance and suggests that uncertain tax avoidance induces non-tax costs on shareholders. This might distort investment decisions of investors and shareholders that select firms based on their payout policies. Second, my findings indicate that analyses of real effects of tax avoidance require separate tests for the level and the uncertainty of tax payments to identify the relevant driver. Third, I document that tax uncertainty affects dividend payouts over and above cash-flow uncertainty induced by operating uncertainty

(Chay and Suh 2009, Hoberg et al. 2014). This finding should interest shareholders and financial statement users as volatile tax payments might be an indicator for lower dividend levels. Thus, tax-policy actions that reduce uncertainty in a firm's tax payments (e.g., the US. Compliance Assurance Process; see Beck and Lisowsky 2014) are likely to stimulate dividend payouts.

References

Allen, F., A. E. Bernardo, and I. Welch. 2000. A Theory of Dividends Based on Tax Clienteles. *The Journal of Finance* 55 (6): 2499–2536.

Allen, F., and R. Michaely. 2003. Payout policy. In *Handbook of the Economics of Finance*, edited by Constantinides, G. M., M. Harris, and R. M. Stulz. Amsterdam, Netherlands: Elsevier.

Allison, P. D. 1999. Comparing Logit and Probit Coefficients across Groups. *Sociological Methods & Research* 28 (2): 186–208.

Bates, T. W., K. M. Kahle, and R. M. Stulz. 2009. Why do US firms hold so much more cash than they used to? *The Journal of Finance* 64 (5): 1985–2021.

Beck, P. J., and P. Lisowsky. 2014. Tax Uncertainty and Voluntary Real-Time Tax Audits. *The Accounting Review* 89 (3): 867–901.

Bhattacharya, S. 1979. Imperfect information, dividend policy, and 'the bird in the hand' fallacy. *Bell Journal of Economics* 10 (1): 259–270.

Blouin, J. L., J. S. Ready, and D. A. Shackelford. 2004. The initial impact of the 2003 reduction in the dividend tax rate. *Working Paper*: University of Pennsylvania and University of North Carolina.

Brav, A., J. R. Graham, C. R. Harvey, and R. Michaely. 2005. Payout policy in the 21st century. *Journal of Financial Economics* 77 (3): 483–527.

Chay, J. B., and J. Suh. 2009. Payout policy and cash-flow uncertainty. *Journal of Financial Economics* 93 (1): 88–107.

Chetty, R., and E. Saez. 2005. Dividend Taxes and Corporate Behavior: Evidence from the 2003 Dividend Tax Cut. *Quarterly Journal of Economics* 120 (3): 791–833.

Chow, G. 1960. Tests of equality between sets of coefficients in two linear regressions. *Econometrica* 28 (3): 591–605.

DeAngelo, H., L. DeAngelo, and R. M. Stulz. 2006. Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory. *Journal of Financial Economics* 81 (2): 227–254.

Denis, D. J., and V. Sibilkov. 2009. Financial constraints, investment, and the value of cash holdings. *Review of Financial Studies* 23 (1): 247–269.

Desai, M. A., and L. Jin. 2011. Institutional tax clienteles and payout policy. *Journal of Financial Economics* 100 (1): 68–84.

DeSimone, L., L. F. Mills, and B. Stomberg. 2016. Using IRS Data to Identify Income Shifting Firms. *Working Paper*: Stanford, University of Texas at Austin, and University of Georgia.

Drake, K. D., S. J. Lusch, and J. Stekelberg. 2017. Does Tax Risk Affect Investor Valuation of Tax Avoidance? *Journal of Accounting, Auditing, and Finance:* forthcoming.

Dyreng, S. D., M. Hanlon, and E. L. Maydew. 2008. Long-run corporate tax avoidance. *The Accounting Review* 83 (1): 61–82.

Dyreng, S. D., M. Hanlon, and E. L. Maydew. 2016. When Does Tax Avoidance Result in Tax Uncertainty? *Working Paper*: Duke University, Massachusetts Institute of Technology (MIT), and University of North Carolina.

Easterbrook, F. H. 1984. Two agency-cost explanations of dividends. *The American Economic Review* 74 (4): 650–659.

Edwards, A., C. Schwab, and T. J. Shevlin. 2016. Financial Constraints and Cash Tax Savings. *The Accounting Review* 91 (3): 859–881.

EU Commission. 2015a. Commission decides selective tax advantages for Fiat in Luxembourg and Starbucks in the Netherlands are illegal under EU state aid rules. *European Commission – Press Release*. Available at: http://europa.eu/rapid/press-release_IP-15-5880_en.htm (last access April 3, 2017).

EU Commission. 2015b. State aid: Commission opens formal investigation into Luxembourg's tax treatment of McDonald's. *European Commission – Press Release*. Available at: http://europa.eu/rapid/press-release_IP-15-6221_en.htm (last access April 3, 2017).

EU Commission. 2016. State aid: Ireland gave illegal tax benefits to Apple worth up to €13 billion. *European Commission – Press Release*. Available at: http://europa.eu/rapid/press-release_IP-16-2923_en.htm (last access April 3, 2017).

Faccio, M., M. T. Marchica, and R. Mura. 2011. Large Shareholder Diversification and Corporate Risk-Taking. *Review of Financial Studies* 24 (11): 3601–3641.

Faulkender, M., and M. A. Petersen. 2006. Does the source of capital affect capital structure? *Review of Financial Studies* 19 (1):45–79.

Fama, E. F., and K. R. French. 2001. Disappearing dividends: changing firm characteristics or lower propensity to pay? *Journal of Financial Economics* 60 (1): 3–43.

Farre-Mensa, J., R. Michaely, and M. Schmalz. 2014. Payout Policy. *Annual Review of Financial Economics* 6: 75–134.

Farre-Mensa, J., and A. Ljungqvist. 2016. Do Measures of Financial Constraints Measure Financial Constraints? *Review of Financial Studies* 29 (2): 271–308.

Frank, M. M., L. J. Lynch, and S. Rego. 2009. Tax Reporting Aggressiveness and Its Relation to Aggressive Financial Reporting. The Accounting Review 84 (2): 467–496.

Goh, B. W., J. Lee, C. Y. Lim, and T. J. Shevlin. 2016. The effect of corporate tax avoidance on the cost of equity. *The Accounting Review* 91 (6): 1647–1670.

Graham, J. R., and A. L. Tucker. 2006. Tax shelters and corporate debt policy. *Journal of Financial Economics* 81 (3): 563–594.

Greene, W. 2004. The behavior of the maximum likelihood estimator of limited dependent variable models in the presence of fixed effects. *Econometrics Journal* 7 (1): 98–119.

Grullon, G., and R. Michaely. 2002. Dividends, share repurchases, and the substitution hypothesis. *The Journal of Finance* 57 (4): 1649–1684.

Grullon, G., R. Michaely, and B. Swaminathan. 2002. Are Dividend Changes a Sign of Maturity? *The Journal of Business* 75 (3): 387–424.

Guenther, D. A. 1994. Earnings Management in Response to Corporate Tax Rate Changes: Evidence from the 1986 Tax Reform Act. *The Accounting Review* 69 (1): 230–243.

Guenther, D. A., S. R. Matsunaga, and B. M. Williams. 2017. Is Tax Avoidance related to Firm Risk? *The Accounting Review* 92 (1): 115–136.

Hadlock, C. J., and J. R. Pierce. 2010. New Evidence on Measuring Financial Constraints: Moving Beyond the KZ Index. *Review of Financial Studies* 23 (5): 1909–1940.

Hail, L., A. Tahoun, and C. Wang. 2014. Dividend Payouts and Information Shocks. *Journal of Accounting Research* 52 (2): 403–456.

Hanlon, M., and S. Heitzman. 2010. A review of tax research. *Journal of Accounting and Economics* 50 (2–3): 127–178.

Hanlon, M., E. L. Maydew, and D. Saavedra 2017. The Taxman Cometh: Does Tax Uncertainty Affect Corporate Cash Holdings*? Review of Accounting Studies:* forthcoming.

Hasan, I., C. K. S. Hoi, Q. Wu, and H. Zhang. 2014. Beauty is in the eye of the beholder: The effect of corporate tax avoidance on the cost of bank loans. *Journal of Financial Economics* 113 (1): 109–130.

Healy, P. M., and K. G. Palepu. 1988. Earnings information conveyed by dividend initiations and omissions. *Journal of Financial Economics* 21 (2): 149–175.

Henry, E., and R. Sansing. 2014. Data Truncation Bias and the Mismeasurement of Corporate Tax Avoidance. *Working Paper*: University of Tennessee and Dartmouth College.

Hoberg, G., G. Philipps, and N. R. Prabhala. 2014. Product Market Threats, Payouts, and Financial Flexibility. *The Journal of Finance* 69 (1): 293–324.

Houlder, V. 2016. US companies warn tax avoidance crackdown will hit earnings. *Financial Times*. Available at: https://www.ft.com/content/b6f04f72-f12c-11e5-aff5-19b4e253664a (last access April 3, 2017)

Hutchens, M., and S. O. Rego. 2015. Does Greater Tax Risk Lead to Increased Firm Risk? *Working Paper*: University of Illinois and Indiana University.

IRS. 2006. IRS Accepts Settlement Offer in Largest Transfer Pricing Dispute. *IRS Newswire*. Available at: https://www.irs.gov/uac/irs-accepts-settlement-offer-in-largest-transfer-pricing-dispute (last access April 3, 2017).

Jacob, M., and M. Jacob. 2013. Taxation, Dividends, and Share Repurchases: Taking Evidence Global. *Journal of Financial and Quantitative Analysis* 48 (4): 1241–1269.

Jacob, M., K. Wentland, and S. Wentland. 2016. Real Effects of Tax Uncertainty: Evidence from Firm Capital Investments. *Working Paper*: WHU – Otto Beisheim School of Management, George Mason University, and Bureau of Economic Analysis (BEA).

Jagannathan, M., C. P. Stephens, and M. S. Weisbach. 2000. Financial flexibility and the choice between dividends and stock repurchases. *Journal of Financial Economics* 57 (3): 355–384.

Jensen, M. C., and W. H. Meckling. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3 (4): 305–360.

Jensen, M. C. 1986. Agency Cost of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review* 76 (2): 323–329.

John, K., and J. Williams. 1985. Dividends, dilution, and taxes: A signalling equilibrium. *The Journal of Finance* 40 (4): 1053–1070.

Klassen, K., and S. Laplante. 2012. Are U.S. multinational corporations becoming more aggressive income shifters? *Journal of Accounting Research* 50 (5): 1245–1285.

Lang, M., P. Pistone, J. Schuch, and C. Staringer. 2015. *Introduction to European Tax Law on Direct Taxation*. Vienna, Austria: Linde Verlag.

Leary, M. T., and R. Michaely. 2011. Determinants of Dividend Smoothing: Empirical Evidence. *Review of Financial Studies* 24 (10): 3197–3249.

Lintner, J. 1956. Distribution of incomes of operations among dividends, retained earnings, and taxes. *The American Economic Review* 46 (2): 97–113.

Livesey, B. 2016. Did this company engineer the largest tax dodge in Canadian history? *National Observer*. Available at: http://www.nationalobserver.com/2016/04/25/news/did-company-engineer-largest-tax-dodge-canadian-history (last access April 3, 2017).

Maydew, E. L. 1997. Tax-Induced Earnings Management by Firms with Net Operating Losses. *Journal of Accounting Research* 35 (1): 83–96.

McGuire, S. T., S. S. Neuman, and T. C. Omer. 2013. Sustainable tax strategies and earnings persistence. *Working Paper*: Texas A&M University, University of Missouri at Columbia, and University of Nebraska at Lincoln.

Michaely, R., R. H. Thaler, and K. L. Womack. 1995. Price reactions to dividend initiations and omissions: Overreaction or drift? *The Journal of Finance* 50 (2): 573–608.

Miller, M. H., and F. Modigliani. 1961. Dividend Policy, Growth, and the Valuation of Shares. *The Journal of Business* 34 (4): 411–433.

Miller, M. H., and K. Rock. 1985. Dividend Policy under Asymmetric Information. *The Journal of Finance* 40 (4): 1031–1051.

Mills, L. F. 1998. Book-tax differences and Internal Revenue Service adjustments. *Journal of Accounting Research* 36 (2): 343–356.

Myers, S. C., and N. C. Majluf. 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics* 13 (2): 187–221.

Neuman, S. S. 2016. Tax Strategies: It's not just about minimization. *Working Paper*: University of Missouri at Columbia.

Neuman, S. S., T. C. Omer, and A. P. Schmidt. 2016. Assessing Tax Risk: Practitioner Perspectives. *Working Paper*: University of Missouri at Columbia, University of Nebraska at Lincoln, and North Carolina State University.

Officer, M. S. 2011. Overinvestment, corporate governance, and dividend initiations. *Journal of Corporate Finance* 17 (3): 710–724.

Petersen, M. A. 2009. Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches. *Review of Financial Studies* 22 (1): 435–480.

Poterba, J. 2004. Taxation and Corporate Payout Policy. *The American Economic Review* 94 (2): 171–175.

Robinson, L., B. Stomberg, and E. M. Towery. 2015. One Size Does Not Fit All: How the Uniform Rules of FIN 48 Affect the Relevance of Income Tax Accounting. *The Accounting Review* 91 (4): 1195–1217.

Saavedra, D. 2017. Less Successful Tax Avoiders. *Working Paper*: University of California, Los Angeles.

Scholes, M. S., P. G. Wilson, and M. A. Wolfson. 1992. Firms' Responses to Anticipated Reductions in Tax Rates: The Tax Reform Act of 1986. *Journal of Accounting Research* 30 (1): 161–185.

Skinner, D. J. 2008. The evolving relation between earnings, dividends, and stock repurchases. *Journal of Financial Economics* 87 (3): 582–609.

Staiger, D., and J. H. Stock. 1997. Instrumental Variables Regression with Weak Instruments. *Econometrica* 65 (3): 557–586.

Smith, C. W., and R. L. Watts. 1992. The investment opportunity set and corporate financing, dividend, and compensation policies. *Journal of Financial Economics* 32 (3): 263–292.

Whited, T. M. 1992. Debt, liquidity constraints, and corporate investment: Evidence from panel data. *The Journal of Finance* 47 (4):1425–1460.

Whited, T. M., and G. Wu. 2006. Financial constraints risk. *Review of Financial Studies* 19 (2): 531–559.

Appendix – Variables

Dependent Variables

DIV	First, *DIV* is an indicator variable with the value of one if a firm declares dividends on common stock in year *t* ($DVC_t > 0$), and zero otherwise ($DVC_t = 0$). Second, *DIV* is the natural logarithm of dividends declared on common stock in year *t* (DVC_t) divided by total assets in year *t* (AT_t). I set negative values to zero. Alternatively, I divide DVC_t by total sales in year *t* ($SALE_t$).
INITIATE	Indicator variable with the value of one if a firm declares dividends in year *t* ($DVC_t > 0$) and did not declare dividends in year *t-1* ($DVC_{t-1} = 0$). The variable is zero if a firm declares dividends in neither year ($DVC_{t,\,t-1} = 0$).
OMIT	Indicator variable with the value of one if a firm does not declare dividends in year *t* ($DVC_t = 0$) and declared dividends in year *t-1* ($DVC_{t-1} > 0$). The variable is zero if a firm declares dividends in both years ($DVC_{t,\,t-1} > 0$).
INCREASE	Indicator variable with the value of one if a firm declares higher dividends per share in year *t* than in year *t-1* ($DVPSP\_F_t > DVPSP\_F_{t-1}$). The variable is zero if a firm does not increase dividends per share in year *t*.
DECREASE	Indicator variable with the value of one if a firm declares lower dividends per share in year *t* than in year *t-1* ($DVPSP\_F_t < DVPSP\_F_{t-1}$). The variable is zero if a firm does not decrease dividends per share in year *t*.
REPU	First, *REPU* is an indicator variable with the value of one if a firm repurchases shares in year *t*, and zero otherwise. I follow Grullon and Michaely (2002) and compute share repurchases as purchases of common and preferred stock in year *t* ($PRSTKC_t$) less the change in the redemption value of preferred stock in year *t* ($PSTKRV_{t-1}$–$PSTRKV_t$). Second, *REPU* is the natural logarithm of share repurchases in year *t* divided by total assets in year *t* (AT_t).

Measures for Tax Uncertainty

TAX_UNCERTAINTY	Coefficient of variation of annual cash ETRs over the five-year period *t-4* to *t*. I calculate annual cash ETRs in year *t* as cash taxes paid ($TXPD_t$) in year *t* divided by pre-tax income in year *t* (PI_t) adjusted for special items (SPI_t). I set missing values for SPI_t to zero. I follow Jacob et al. (2016) and require non-missing values in each year. I set annual cash ETRs to 1 in case of a positive numerator and a negative denominator and to 0 in case of a negative numerator and a negative denominator. I winsorize annual cash ETRs at 1 and 0.
TAX_UNCERTAINTY2	Coefficient of variation of annual cash ETRs over the five-year period *t-4* to *t*. I follow Hutchens and Rego (2015) and require a positive denominator and non-missing values in each year. I winsorize annual cash ETRs at 1 and 0.
CV_TAX_ASSETS	Coefficient of variation of the ratio of cash taxes paid in year *t* ($TXPD_t$) divided by total assets in year *t* (AT_t). I calculate *CV_TAX_ASSETS* over the five-year period *t-4* to *t*. I drop observations with a negative numerator ($TXPD_t < 0$).
LSTA	Indicator variable with the value of one if the annual cash ETR and the average annual cash ETR are larger than 0.6 in any of the years *t-4* to *t*, and zero otherwise. I follow Saavedra (2017) and calculate average annual cash ETRs as cash taxes paid in year *t* ($TXPD_t$) divided by the average pre-tax income over the three-year period *t-2* to *t* ($PI_{t-2;t}$) adjusted for special items ($SPI_{t-2;t}$). I require a positive denominator and non-missing values in each year.

RESID_TAX_UNCERTAINTY	Standard deviation of the residual from a regression of annual cash ETRs on *NOL*, *R&D*, *CAPEX*, and *FOROPS*. I calculate the standard deviation over the five-year period *t-4* to *t.* To calculate annual cash ETRs, I follow Jacob et al. (2016) and require non-missing values. I set annual cash ETRs to 1 in case of a positive numerator and a negative denominator and to 0 in case of a negative numerator and a negative denominator. I winsorize annual cash ETRs at 1 and 0. *NOL* denotes the amount of tax loss carry forward in year *t* ($TLCF_t$) divided by total assets in year *t-1* (AT_{t-1}). I set missing values for $TLCF_t$ to zero. *R&D* denotes the research and development expense in year *t* (XRD_t) divided by total assets in year *t-1* (AT_{t-1}). I set missing values for XRD_t to zero. *CAPEX* denotes capital expenditures in year *t* ($CAPX_t$) divided by total assets in year *t-1* (AT_{t-1}). *FOROPS* is an indicator variable with the value of one if the firm has non-missing values for foreign income in year *t* ($PIFO_t$), and zero otherwise. I estimate this regression per year and 2-digit SIC code. I use the entire population of COMPUSTAT firms and require at least 15 observations in each industry-year (see Frank et al. 2009).
Instrumental Variable	
AV_TAX_UNCERTAINTY	Mean of *TAX_UNCERTAINTY* per industry-year excluding *TAX_UNCERTAINTY* of firm *i*. I calculate *AV_TAX_UNCERTAINTY* per year and 2-digit SIC code. I require at least 15 observations in each industry-year.
Control Variables	
CASH_ETR	Long-run cash ETR as the sum of cash taxes paid over the five-year period *t-4* to *t* ($TXPD_{t-4;t}$) divided by the sum of pre-tax income over the five-year period *t-4* to *t* ($PI_{t-4;t}$) adjusted for special items ($SPI_{t-4;t}$). I set missing values for SPI_t to zero. I follow Dyreng et al. (2008) and require firms to have a positive denominator. I winsorize *CASH_ETR* at 1 and 0.
CASH_FLOW	Net operating cash flows in year *t* ($OANCF_t$) adjusted for cash taxes paid in year *t* ($TXPD_t$) and divided by total assets in year *t-1* (AT_{t-1}).
SD_CASH_FLOW	Standard deviation of *CASH_FLOW* over the five-year period *t-4* to *t*.
CASH	Cash and short-term investments in year *t* (CHE_t) divided by total assets in year *t* (AT_t).
MTB	Market value of equity in year *t* ($PRCC\_F_t$*$CSHO_t$) divided by the book value of equity in year *t* (CEQ_t).
SALES_GROWTH	Sales in year *t* ($SALE_t$) divided by sales in year *t-2* ($SALE_{t-2}$) less 1.
ASSET_GROWTH	Total assets in year *t* (AT_t) divided by total assets in year *t-1* (AT_{t-1}) less 1.
RE_TE	Retained earnings in year *t* (RE_t) divided by shareholder equity in year *t* (SEQ_t)
AGE	Natural logarithm of 1 plus firm age in year *t*. I follow Hadlock and Pierce (2010) and compute firm age as year *t* ($FYEAR_t$) less the first year with a non-missing stock price ($PRCC\_F_t$) in COMPUSTAT. I set negative values to zero.
SIZE	Natural logarithm of total assets in year *t* (AT_t). Alternatively, I measure *SIZE* as the natural logarithm of total sales in year *t* ($SALE_t$).
LEVERAGE	Long-term debt in year *t* ($DLTT_t$) divided by total assets in year *t* (AT_t).
NOL	Amount of tax loss carry forward in year *t* ($TLCF_t$) divided by total assets in year *t-1* (AT_{t-1}). I set missing values to zero.

R&D	Research and development expense in year *t* (XRD_t) divided by total assets in year *t-1* (AT_{t-1}). I set missing values to zero.
SGA	Selling, general, and administrative expense in year *t* ($XSGA_t$) divided by total assets in year *t-1* (AT_{t-1}). I set missing values to zero.
ADVERTISING	Advertising expense in year *t* (XAD_t) divided by total assets in year *t-1* (AT_{t-1}). I set missing values to zero.
CAP_INTENSITY	Property, plant and equipment in year *t* ($PPEGT_t$) divided by total assets in year *t-1* (AT_{t-1}).
Additional Control Variables	
ROA	Earnings before interest and taxes in year *t* ($EBIT_t$) divided by total assets in year *t-1* (AT_{t-1}).
SD_ROA	Standard deviation of *ROA* over the five-year period *t-4* to *t*.
LN(MV)	Natural logarithm of the market value of equity in year *t* ($PRCC\_F_t$*$SCHO_t$).
Partitioning Variables	
CONSTRAINTS	Indicator variable with the value of one if the firm does not have a Standard & Poor's Issuer Credit Rating in year *t* ($SPLTICRM_t$), and zero otherwise.
HIGH_INST	Indicator variable with the value of one if the share of average institutional ownership in year *t* ($INSTOWN\_PERC_t$) is above the annual median, and zero otherwise. I obtain ownership data from the Thomson Reuters Institutional (13f) Holdings Database.
GROWING	Indicator variable with the value of one if the ratio of retained earnings divided by shareholder equity in year *t* (*RE_TE*) is below the annual median, and zero otherwise.
POST	Indicator variable with the value of zero for fiscal years 1999-2001 and the value of one for fiscal years 2004-2006.
HIGH_TAX_UNCERTAINTY	Indicator variable with the value of one if *TAX_UNCERTAINTY* is above the annual median in any of the fiscal years 1999-2001, and zero otherwise.

Note: I provide COMPUSTAT variable names in parentheses. Variables collected from other sources are defined accordingly.

Table 1
Sample Section

Data Restrictions	**Firm-Years**	**Firms**
Observations in COMPUSTAT Industrial for fiscal years 1993-2014	251,611	28,170
Less: Observations of firms incorporated outside the United States	(65,326)	(7,627)
Less: Observations of financial institutions (SIC codes 6000-6999) and utilities (SIC codes 4900-4949)	(59,170)	(6,872)
Less: Observations of firms with "LP" or "TRUST" in their name	(1,298)	(145)
Less: Observations with dividends greater than sales ($DVC_t > SALE_t$)	(1,659)	(469)
Less: Observations with negative dividends ($DVC_t < 0$) or negative sales ($SALE_t < 0$)	(5)	–
Less: Observations with book equity below \$250,000 ($CEQ_t < 0.25$) or total assets below \$500,000 ($AT_t < 0.5$)	(20,035)	(615)
Less: Observations with insufficient data to compute *TAX_UNCERTAINTY*	(56,611)	(5,951)
Less: Observations with insufficient data to compute control variables	(14,777)	(1,978)
Full Sample: Dividend-paying firms and non-dividend-paying firms (sample period 1998-2014)	**32,730**	**4,513**
Less: Observations with zero dividend payouts ($DVC_t = 0$)	(19,136)	(2,691)
Subsample: Dividend-paying firms (sample period 1998-2014)	**13,594**	**1,822**

Note: This table presents the sample selection. The full sample (subsample) includes dividend-paying and non-dividend-paying firms (dividend-paying firms). I define variables in the Appendix.

Table 2
Descriptive Statistics

Variables	(1) N	(2) Mean	(3) SD	(4) 25%	(5) Median	(6) 75%	(7) Mean DIV > 0	(8) Mean DIV = 0
DIV	32,730	0.415	0.493	0.000	0.000	1.000	0.027	0.000
TAX_UNCERTAINTY	32,730	0.639	0.441	0.282	0.554	0.890	0.484	0.749
CASH_ETR	32,730	0.284	0.197	0.164	0.268	0.353	0.283	0.284
CASH_FLOW	32,730	0.140	0.111	0.070	0.126	0.195	0.154	0.129
SD_CASH_FLOW	32,730	0.074	0.063	0.033	0.055	0.092	0.054	0.088
CASH	32,730	0.150	0.164	0.026	0.086	0.221	0.121	0.171
MTB	32,730	2.684	2.640	1.188	1.915	3.151	2.995	2.469
SALES_GROWTH	32,730	0.229	0.433	-0.011	0.149	0.363	0.164	0.277
ASSET_GROWTH	32,730	0.110	0.261	-0.018	0.060	0.165	0.080	0.130
RE_TE	32,730	0.348	1.086	0.144	0.528	0.828	0.750	0.031
AGE	32,730	2.852	0.677	2.303	2.890	3.466	3.177	2.621
SIZE	32,730	6.291	1.980	4.934	6.281	7.606	7.117	5.706
LEVERAGE	32,730	0.165	0.163	0.003	0.132	0.271	0.176	0.157
NOL	32,730	0.062	0.166	0.000	0.000	0.037	0.030	0.087
R&D	32,730	0.028	0.051	0.000	0.000	0.034	0.017	0.036
SGA	32,730	0.288	0.230	0.117	0.238	0.401	0.252	0.314
ADVERTISING	32,730	0.013	0.032	0.000	0.000	0.009	0.013	0.013
CAP_INTENSITY	32,730	0.559	0.407	0.242	0.457	0.784	0.640	0.502

Note: This table presents descriptive statistics. Columns 1-6, 7 and 8 present descriptive statistics for dividend-paying and non-dividend-paying firms, for dividend-paying firms, and for non-dividend-paying firms. In Columns 2-6 (7-8), *DIV* is an indicator variable with the value of one if a firm declares dividends in year *t*, and zero otherwise (dividends declared in year *t* and scaled by total assets in year *t*). All continuous variables are winsorized at the 1st and 99th percentile. I define variables in the Appendix.

Table 3

Correlation Table

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) DIV	1.00																	
(2) TAX_UNCERTAINTY	**-0.30**	1.00																
(3) CASH_ETR	0.00	**-0.28**	1.00															
(4) CASH_FLOW	**0.11**	**-0.23**	**-0.11**	1.00														
(5) SD_CASH_FLOW	**-0.25**	**0.22**	**0.07**	**0.08**	1.00													
(6) CASH	**-0.15**	**0.08**	-0.01	**0.20**	**0.29**	1.00												
(7) MTB	**0.09**	**-0.12**	**-0.10**	**0.38**	**0.03**	**0.13**	1.00											
(8) SALES_GROWTH	**-0.12**	**0.04**	**-0.14**	**0.24**	**0.17**	-0.01	**0.14**	1.00										
(9) ASSET_GROWTH	**-0.09**	0.00	**-0.13**	**0.27**	**0.14**	**0.05**	**0.15**	**0.49**	1.00									
(10) RE_TE	**0.29**	**-0.33**	0.01	**0.19**	**-0.14**	**-0.06**	-0.01	0.00	**0.03**	1.00								
(11) AGE	**0.40**	**-0.14**	**-0.03**	-0.01	**-0.27**	**-0.12**	0.01	**-0.16**	**-0.10**	**0.19**	1.00							
(12) SIZE	**0.35**	**-0.25**	**-0.14**	**0.06**	**-0.35**	**-0.19**	**0.19**	**0.03**	**0.05**	**0.21**	**0.27**	1.00						
(13) LEVERAGE	**0.06**	**0.05**	**-0.07**	**-0.16**	**-0.22**	**-0.43**	**0.07**	**0.05**	**0.05**	**-0.09**	**0.02**	**0.32**	1.00					
(14) NOL	**-0.15**	**0.23**	**-0.07**	**-0.10**	**0.11**	**0.09**	0.01	-0.01	**0.04**	**-0.38**	**-0.03**	**-0.13**	**-0.02**	1.00				
(15) R&D	**-0.18**	**0.14**	**-0.07**	**0.05**	**0.17**	**0.43**	**0.17**	**0.06**	**0.13**	**-0.12**	**-0.09**	**-0.11**	**-0.26**	**0.19**	1.00			
(16) SGA	**-0.13**	-0.01	**0.10**	**0.14**	**0.19**	**0.15**	**0.14**	**0.04**	**0.13**	**-0.05**	**-0.11**	**-0.32**	**-0.29**	**0.07**	**0.25**	1.00		
(17) ADVERTISING	0.00	**-0.07**	**0.04**	**0.12**	**0.06**	**0.02**	**0.13**	0.00	**0.03**	**0.06**	**-0.03**	0.00	**-0.05**	**-0.03**	**-0.07**	**0.41**	1.00	
(18) CAP_INTENSITY	**0.17**	**0.05**	**-0.07**	**0.21**	**-0.12**	**-0.30**	**-0.02**	**0.03**	**0.13**	**0.09**	**0.12**	**0.07**	**0.23**	**-0.05**	**-0.23**	**-0.19**	-0.01	1.00

Note: This table presents Pearson correlation coefficients for the full sample of dividend-paying and non-dividend-paying firms. *DIV* is an indicator variable with the value of one if a firm declares dividends in year *t*, and zero otherwise. All continuous variables are winsorized at the 1st and 99th percentile. I define variables in the Appendix. Bold coefficients denote significance at the 1% level.

Table 4
Tax Uncertainty and the Probability of Dividend Payouts

	(1) Coef. (SE)	(2) ME	(3) Coef. (SE)	(4) ME
Variables	*DIV*		*DIV*	
TAX_UNCERTAINTY	-0.752***	-0.180	-0.427***	-0.099
	(0.034)		(0.036)	
CASH_ETR			0.040	0.009
			(0.029)	
CASH_FLOW			0.150***	0.035
			(0.035)	
SD_CASH_FLOW			-0.184***	-0.042
			(0.040)	
CASH			0.003	0.001
			(0.043)	
MTB			0.157***	0.036
			(0.043)	
SALES_GROWTH			-0.225***	-0.052
			(0.025)	
ASSET_GROWTH			-0.235***	-0.054
			(0.023)	
RE_TE			0.421***	0.097
			(0.056)	
AGE			0.692***	0.160
			(0.041)	
SIZE			0.568***	0.131
			(0.049)	
LEVERAGE			-0.117***	-0.027
			(0.040)	
NOL			-0.132***	-0.031
			(0.048)	
R&D			-0.331***	-0.077
			(0.057)	
SGA			0.080	0.018
			(0.049)	
ADVERTISING			-0.040	-0.009
			(0.041)	
CAP_INTENSITY			0.341***	0.079
			(0.046)	
Intercept	-0.852***		-0.356***	
	(0.070)		(0.084)	
Year FE	Y		Y	
Industry FE	Y		Y	
Observations	32,730		32,730	
Likelihood Ratio	-19,730		-15,653	
Pseudo R^2	0.112		0.295	

Note: This table presents regression results for tests that examine the effect of tax uncertainty on the probability of dividend payouts for the full sample of dividend-paying and non-dividend-paying firms. Columns 1 and 3 (2 and 4) report coefficients (marginal effects) for a logit regression based on Equation (1). I calculate marginal effects while holding continuous variables at their means. All variables are standardized to have a mean of zero and a standard deviation of one prior to fitting regressions. The dependent variable, *DIV*, is an indicator variable with the value of one if a firm declares dividends in year *t*, and zero otherwise. All regressions are estimated with year and industry-fixed effects. I report heteroscedasticity-robust standard errors clustered by firm in parentheses. I define variables in the Appendix. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively (two-tailed).

Table 5
The Effect of Tax Uncertainty and Financial Constraints

	(1) Coef. (SE)	(2) ME	(3) Coef. (SE)	(4) ME
Subsample	*CONSTRAINTS = 0*		*CONSTRAINTS = 1*	
Variables	*DIV*		*DIV*	
TAX_UNCERTAINTY β1	-0.296***	-0.068	-0.494***	-0.093
	(0.060)		(0.044)	
Additional Controls	Y		Y	
Year FE	Y		Y	
Industry FE	Y		Y	
Observations	10,718		22,012	
Likelihood Ratio	-4,964		-10,490	
Pseudo R^2	0.313		0.246	
Equality of β1 p-value	0.010***			

Note: This table presents regression results for tests that examine the moderating effect of financial constraints for the full sample of dividend-paying and non-dividend-paying firms. Columns 1-2 (3-4) include firms with *CONSTRAINTS=0* (*CONSTRAINTS=1*). Columns 1 and 3 (2 and 4) report coefficients (marginal effects) for a logit regression based on Equation (1). I calculate marginal effects while holding continuous variables at their means. All variables are standardized to have a mean of zero and a standard deviation of one prior to fitting regressions. The dependent variable, *DIV,* is an indicator variable with the value of one if a firm declares dividends in year *t*, and zero otherwise. All regressions are estimated with year and industry-fixed effects. I report heteroscedasticity-robust standard errors clustered by firm in parentheses. I define variables in the Appendix. I conduct a t-test to assess the equality of coefficients between subsamples. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively (two-tailed).

Table 6
The Effect of Tax Uncertainty and Institutional Ownership

	(1) Coef. (SE)	(2) ME	(3) Coef. (SE)	(4) ME
Subsample	*HIGH_INST = 0*		*HIGH_INST = 1*	
Variables	*DIV*		*DIV*	
TAX_UNCERTAINTY β1	-0.492***	-0.111	-0.266***	-0.064
	(0.060)		(0.061)	
Additional Controls	Y		Y	
Year FE	Y		Y	
Industry FE	Y		Y	
Observations	11,089		11,080	
Likelihood Ratio	-4,883		-5,404	
Pseudo R^2	0.347		0.289	
Equality of β1 p-value	0.007***			

Note: This table presents regression results for tests that examine the moderating effect of institutional ownership for the full sample of dividend-paying and non-dividend-paying firms. I obtain ownership data from the Thomson Reuters Institutional (13f) Holdings Database. Columns 1-2 (3-4) include firms with *HIGH_INST=0* (*HIGH_INST=1*). Columns 1 and 3 (2 and 4) report coefficients (marginal effects) for a logit regression based on Equation (1). I calculate marginal effects while holding continuous variables at their means. All variables are standardized to have a mean of zero and a standard deviation of one prior to fitting regressions. The dependent variable, *DIV*, is an indicator variable with the value of one if a firm declares dividends in year *t*, and zero otherwise. All regressions are estimated with year and industry-fixed effects. I report heteroscedasticity-robust standard errors clustered by firm in parentheses. I define variables in the Appendix. I conduct a t-test to assess the equality of coefficients between subsamples. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively (two-tailed).

Table 7
Tax Uncertainty and Dividend Levels

	(1) Coef. (SE)	(2) Coef. (SE)	(3) Coef. (SE)
Variables	*DIV*	*DIV*	*DIV*
TAX_UNCERTAINTY	-0.174***	-0.105***	-0.092***
	(0.020)	(0.017)	(0.021)
CASH_ETR		0.009	0.043**
		(0.015)	(0.018)
CASH_FLOW		0.214***	0.179***
		(0.018)	(0.021)
SD_CASH_FLOW		-0.007	-0.084***
		(0.017)	(0.021)
CASH		0.129***	0.205***
		(0.019)	(0.022)
MTB		0.256***	0.264***
		(0.018)	(0.022)
SALES_GROWTH		-0.104***	-0.154***
		(0.011)	(0.014)
ASSET_GROWTH		-0.179***	-0.087***
		(0.010)	(0.013)
RE_TE		-0.034**	-0.044**
		(0.017)	(0.020)
AGE		0.096***	0.118***
		(0.019)	(0.022)
SIZE		-0.130***	-0.234***
		(0.024)	(0.029)
LEVERAGE		-0.130***	-0.014
		(0.020)	(0.025)
NOL		-0.030*	-0.034*
		(0.016)	(0.019)
R&D		0.027	0.115***
		(0.021)	(0.025)
SGA		0.017	-0.285***
		(0.023)	(0.027)
ADVERTISING		0.038**	0.111***
		(0.017)	(0.019)
CAP_INTENSITY		0.109***	0.110***
		(0.024)	(0.030)
Intercept	-4.272***	-4.236***	-4.195***
	(0.053)	(0.047)	(0.054)
Year FE	Y	Y	Y
Industry FE	Y	Y	Y
Observations	13,594	13,594	13,594
Likelihood Ratio	-19,090	-16,802	-18,602
Adjusted R^2	0.089	0.349	0.318

Note: This table presents regression results for tests that examine the effect of tax uncertainty on dividend levels for the subsample of dividend-paying firms. All columns report coefficients for an OLS regression based on Equation (1). All variables are standardized to have a mean of zero and a standard deviation of one prior to fitting regressions. In columns 1-2 (3), the dependent variable, *DIV*, is the natural logarithm of dividends in year *t* and scaled by total assets in year *t* (the natural logarithm of dividends in year *t* and scaled by total sales in year *t*). In columns 1-2 (3), *SIZE* is the natural logarithm of total assets in year *t* (the natural logarithm of total sales in year *t*). All regressions are estimated with year and industry-fixed effects. I report heteroscedasticity-robust standard errors clustered by firm in parentheses. I define variables in the Appendix. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively (two-tailed).

Table 8
The Effect of Tax Uncertainty and a Firm's Life-Cycle Stage

	(1) Coef. (SE)	(2) Coef. (SE)
Subsample	*GROWING = 0*	*GROWING = 1*
Variables	*DIV*	*DIV*
TAX_UNCERTAINTY β1	-0.155***	-0.085***
	(0.027)	(0.021)
Additional Controls	Y	Y
Year FE	Y	Y
Industry FE	Y	Y
Observations	6,793	6,801
Likelihood Ratio	-7,691	-8,825
Adjusted R^2	0.334	0.364
Equality of β1 p-value	0.030**	

Note: This table presents regression results for tests that examine the moderating effect of a firm's life-cycle stage for the subsample of dividend-paying firms. Column 1 (2) includes firms with *GROWING=0* (*GROWING=1*). All columns report coefficients for an OLS regression based on Equation (1). All variables are standardized to have a mean of zero and a standard deviation of one prior to fitting regressions. The dependent variable, *DIV*, is the natural logarithm of dividends in year *t* and scaled by total assets in year *t.* All regressions are estimated with year and industry-fixed effects. I report heteroscedasticity-robust standard errors clustered by firm in parentheses. I define variables in the Appendix. I conduct a Chow (1960) test to assess the equality of coefficients between subsamples. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively (two-tailed).

Table 9
Alternative Measures for Tax Uncertainty and Endogeneity Concerns
Panel A: Tax Uncertainty and the Probability of Dividend Payouts

	(1)	(2)	(3)	(4)	(5)
	ME (SE)	ME (SE)	ME (SE)	ME (SE)	ME (SE)
Variables	*DIV*	*DIV*	*DIV*	*DIV*	*DIV*
TAX_UNCERTAINTY2	-0.052***				
	(0.042)				
CV_TAX_ASSETS		-0.073***			
		(0.036)			
LSTA			-0.026***		
			(0.037)		
RESID_TAX_UNCERTAINTY				-0.081***	
				(0.033)	
TAX_UNCERTAINTY					-0.201***
					(0.024)
First-Stage Regression:					
IV: *AV_TAX_UNCERTAINTY*					0.121***
					(0.006)
Partial R^2					0.017
Partial f-Statistic					433.860
Additional Controls	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	N
Observations	18,951	26,414	18,466	31,306	29,559
Likelihood Ratio	-9,651	-12,555	-9,562	-15,392	-
Pseudo R^2	0.263	0.305	0.247	0.276	0.269

Panel B: Tax Uncertainty and Dividend Levels

	(1)	(2)	(3)	(4)	(5)
	Coef. (SE)	Coef. (SE)	Coef. (SE)	Coef. (SE)	Coef. (SE)
Variables	*DIV*	*DIV*	*DIV*	*DIV*	*DIV*
TAX_UNCERTAINTY2	-0.065***				
	(0.019)				
CV_TAX_ASSETS		-0.045***			
		(0.017)			
LSTA			-0.063***		
			(0.014)		
RESID_TAX_UNCERTAINTY				-0.048***	
				(0.016)	
TAX_UNCERTAINTY					-0.199**
					(0.100)
First-Stage Regression:					
IV: *AV_TAX_UNCERTAINTY*					0.111***
					(0.011)
Partial R^2					0.013
Partial f-Statistic					108.250
Additional Controls	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	N
Observations	10,134	11,384	10,175	13,077	9,659
Likelihood Ratio	-11,994	-13,821	-12,020	-16,369	-
Adjusted R^2	0.370	0.355	0.374	0.325	0.318

Note: This table presents regression results for robustness tests with alternative measures for tax uncertainty. Panel A (B) includes samples of dividend-paying and non-dividend-paying firms (subsamples of dividend-paying firms). Panel A (B), columns 1-4 report marginal effects for a logit regression (coefficients for an OLS regression) based on Equation (1). Panels A and B, column 5 reports results for a 2-SLS-model. In a first stage, I estimate Equation (1) with *TAX_UNCERTAINTY* as a dependent variable and *AV_TAX_UNCERTAINTY* as an instrumental variable. In a second stage, I estimate Equation (1) with predicted values for *TAX_UNCERTAINTY* obtained from the first-stage regression. I calculate marginal effects while holding continuous variables at their means. All variables are standardized to have a mean of zero and a standard deviation of one prior to fitting regressions. In Panel A (B), the dependent variable, *DIV*, is an indicator variable with the value of one if a firm declares dividends in year *t*, and zero otherwise (the natural logarithm of dividends in year *t* and scaled by total assets in year *t*). Regressions in columns 1-4 (5) are estimated with year and industry-fixed effects (year-fixed effects). I report heteroscedasticity-robust standard errors clustered by firm in parentheses. I define variables in the Appendix. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively (two-tailed).

Table 10
Further Robustness Tests

	(1) ME (SE)	(2) ME (SE)	(3) ME (SE)	(4) Coef. (SE)	(5) Coef. (SE)	(6) Coef. (SE)
Variables	*DIV*	*DIV*	*DIV*	*DIV*	*DIV*	*DIV*
TAX_UNCERTAINTY	-0.166***	-0.099***	-0.083***	-0.086***	-0.109***	-0.080***
	(0.051)	(0.035)	(0.036)	(0.013)	(0.017)	(0.018)
ROA			0.044***			0.275***
			(0.040)			(0.020)
SD_ROA			-0.054***			0.015
			(0.043)			(0.016)
LN(MV)			0.144***			-0.058**
			(0.050)			(0.023)
Additional Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	N	Y	Y	N	Y
Industry FE	N	N	Y	N	N	Y
Firm FE	Y	N	N	Y	N	N
Observations	9,991	32,730	32,730	13,594	13,594	13,594
Likelihood Ratio	-3,061	-16,114	-15,583	-8,653	-17,160	-16,772
Pseudo/Adjusted R^2	0.273	0.275	0.299	0.162	0.315	0.352

Note: This table presents regression results for further robustness tests. Columns 1-3 (4-6) include the full sample of dividend-paying and non-dividend-paying firms (the subsample of dividend-paying firms). Columns 1-3 (4-6) report marginal effects for a logit regression (coefficients for an OLS regression) based on Equation (1). I calculate marginal effects while holding continuous variables at their means. All variables are standardized to have a mean of zero and a standard deviation of one prior to fitting regressions. In columns 1-3 (4-6) the dependent variable, *DIV*, is an indicator variable with the value of one if a firm declares dividends in year *t*, and zero otherwise (the natural logarithm of dividends in year *t* and scaled by total assets in year *t*). Columns 3 and 6 include alternative control variables. Columns 1 and 4, 2 and 5, and 3 and 6 are estimated with year and firm-fixed effects, without fixed effects, and year and industry-fixed effects, respectively. I report heteroscedasticity-robust standard errors clustered by firm in parentheses. I define variables in the Appendix. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively (two-tailed).

Table 11
Time-Series Tests of Tax Uncertainty and Dividend Payouts

	(1) Coef.	(2) ME	(3) Coef.	(4) ME	(5) Coef.	(6) ME	(7) Coef. (SE)	(8) ME
Variables	*INITIATE*		*OMIT*		*INCREASE*		*DECREASE*	
TAX_UNCERTAINTY	-0.136***	-0.004	0.421***	0.008	-0.247***	-0.061	0.037	0.004
	(0.048)		(0.052)		(0.035)		(0.033)	
CASH_ETR	0.077*	0.002	-0.222***	-0.004	0.122***	0.030	-0.108***	-0.013
	(0.045)		(0.038)		(0.032)		(0.027)	
CASH_FLOW	0.297***	0.009	-0.357***	-0.007	0.318***	0.079	-0.075**	-0.009
	(0.052)		(0.063)		(0.036)		(0.035)	
SD_CASH_FLOW	-0.083*	-0.002	0.166***	0.003	-0.137***	-0.034	0.182***	0.022
	(0.049)		(0.043)		(0.031)		(0.027)	
CASH	0.196***	0.006	0.035	0.001	0.014	0.003	-0.031	-0.004
	(0.047)		(0.057)		(0.033)		(0.033)	
MTB	-0.009	0.000	-0.195**	-0.004	-0.034	-0.009	0.183***	0.022
	(0.041)		(0.084)		(0.034)		(0.032)	
SALES_GROWTH	0.012	0.000	-0.096	-0.002	0.070***	0.017	-0.062*	-0.007
	(0.052)		(0.061)		(0.027)		(0.034)	
ASSET_GROWTH	-0.380***	-0.011	0.211***	0.004	-0.024	-0.006	0.075***	0.009
	(0.075)		(0.048)		(0.024)		(0.029)	
RE_TE	0.127**	0.004	-0.297***	-0.006	0.143***	0.036	-0.161***	-0.019
	(0.058)		(0.063)		(0.034)		(0.032)	
AGE	0.173***	0.005	-0.254***	-0.005	0.014	0.004	0.058**	0.007
	(0.042)		(0.051)		(0.034)		(0.030)	
SIZE	0.150***	0.004	-0.577***	-0.011	0.271***	0.067	-0.237***	-0.028
	(0.054)		(0.075)		(0.039)		(0.037)	
LEVERAGE	-0.061	-0.002	0.236***	0.004	-0.127***	-0.032	-0.063*	-0.008
	(0.051)		(0.062)		(0.036)		(0.036)	
NOL	-0.071	-0.002	0.036	0.001	-0.094***	-0.023	0.067**	0.008
	(0.064)		(0.044)		(0.031)		(0.028)	
R&D	-0.340***	-0.010	0.038	0.001	-0.034	-0.008	-0.095***	-0.011
	(0.069)		(0.057)		(0.038)		(0.034)	
SGA	0.021	0.001	0.099	0.002	-0.037	-0.009	-0.059	-0.007
	(0.060)		(0.068)		(0.042)		(0.037)	
ADVERTISING	-0.012	0.000	-0.102	-0.002	-0.009	-0.002	0.015	0.002
	(0.048)		(0.069)		(0.034)		(0.029)	
CAP_INTENSITY	0.052	0.002	-0.205***	-0.004	-0.102**	-0.025	-0.020	-0.002
	(0.056)		(0.066)		(0.041)		(0.035)	
Intercept	-3.726***		-4.248***		-0.047		-1.789***	
	(0.216)		(0.253)		(0.099)		(0.115)	
Year FE	Y		Y		Y		Y	
Industry FE	Y		Y		Y		Y	
Observations	19,436		13,285		12,716		12,716	
Likelihood Ratio	-3,227		-1,860		-7,911		-5,176	
Pseudo R^2	0.093		0.208		0.099		0.049	

Note: This table presents regression results for time-series tests of the effect of tax uncertainty on changes in dividend payouts over time. Columns 1-2 include firms that do not distribute dividends in years *t-1* and *t* and firms that initiate dividends in year *t*. Columns 3-8 include firms that distribute dividends in years *t-1* and *t*. Columns 3-4 additionally include firms that omit dividends in year *t*. Columns 1, 3, 5, and 7 (2, 4, 6, and 8) report coefficients (marginal effects) for a logit regression based on Equation (1). I calculate marginal effects while holding continuous variables at their means. All variables are standardized to have a mean of zero and a standard deviation of one prior to fitting regressions. In columns 1-2, the dependent variable, *INITIATE*, is an indicator variable with the value of one if a firm initiates dividends in year *t*, and zero otherwise. In columns 3-4, the dependent variable, *OMIT*, is an indicator variable with the value of one if a firm omits dividends in year *t*, and zero otherwise. In columns 5-6, the dependent variable, *INCREASE*, is an indicator variable with the value of one if a firm increases dividends in year *t*, and zero otherwise. In columns 7-8, the dependent variable, *DECREASE*, is an indicator variable with the value of one if a firm decreases dividends in year *t*, and zero otherwise. All regressions are estimated with year and industry-fixed effects. I report heteroscedasticity-robust standard errors clustered by firm in parentheses. I define variables in the Appendix. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively (two-tailed).

Table 12
Tax Uncertainty and the 2003 Dividend Tax Cut

	(1)	(2)	(3)
	Coef. (SE)	ME	Coef. (SE)
Variables	*DIV*		*DIV*
HIGH_TAX_UNCERTAINTY	0.351	0.023	-0.060*
	(0.239)		(0.033)
POST	1.617***	0.107	0.057**
	(0.250)		(0.024)
HIGH_TAX_UNCERTAINTY#POST	-0.583**	-0.039	-0.053**
	(0.270)		(0.025)
Additional Controls	Y		Y
Industry FE	Y		Y
Observations	3,030		2,982
Likelihood Ratio	-943		-3,123
Pseudo/Adjusted R^2	0.213		0.399

Note: This table presents regression results for the effect of tax uncertainty on dividend payouts around the dividend tax cut introduced by the Jobs and Growth Tax Relief Reconciliation Act of 2003 (fiscal years 1999-2001 and fiscal years 2004-2006). Columns 1-2 (3) include a sample of firms that do not distribute dividends in the fiscal year 1998 (that distribute dividends during the sample period). Columns 1 and 2 report coefficients and marginal effects for a logit regression, respectively, and column 3 coefficients for an OLS regression, all based on Equation (1). I calculate marginal effects while holding continuous variables at their means. All variables are standardized to have a mean of zero and a standard deviation of one prior to fitting regressions. In columns 1-2 (3) the dependent variable, *DIV*, is an indicator variable with the value of one if a firm declares dividends in year *t*, and zero otherwise (the natural logarithm of dividends in year *t* and scaled by total assets in year *t*). All regressions are estimated with industry-fixed effects. I report heteroscedasticity-robust standard errors clustered by firm in parentheses. I define variables in the Appendix. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively (two-tailed).

Table 13
Tax Uncertainty and Dividend Payouts by Quartiles of *SD_CASH_FLOW*

Panel A: Tax Uncertainty and the Probability of Dividend Payouts

	(1) ME (SE)	(2) ME (SE)	(3) ME (SE)	(4) ME (SE)
Subsamples	*Quartile 1*	*Quartile 2*	*Quartile 3*	*Quartile 4*
Variables	*DIV*	*DIV*	*DIV*	*DIV*
TAX_UNCERTAINTY	-0.090***	-0.105***	-0.086***	-0.071***
	(0.072)	(0.056)	(0.052)	(0.065)
Additional Controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y
Observations	8,188	8,182	8,183	8,177
Likelihood Ratio	-3,906	-4,100	-4,044	-3,399
Pseudo R^2	0.295	0.274	0.250	0.248

Panel B: Tax Uncertainty and Dividend Levels

	(1) Coef. (SE)	(2) Coef. (SE)	(3) Coef. (SE)	(4) Coef. (SE)
Subsamples	*Quartile 1*	*Quartile 2*	*Quartile 3*	*Quartile 4*
Variables	*DIV*	*DIV*	*DIV*	*DIV*
TAX_UNCERTAINTY	-0.098***	-0.045	-0.121***	-0.103***
	(0.032)	(0.028)	(0.027)	(0.027)
Additional Controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y
Observations	3,404	3,397	3,401	3,392
Likelihood Ratio	-3,784	-3,931	-4,187	-4,544
Adjusted R^2	0.350	0.362	0.351	0.387

Note: This table presents regression results for tests that examine the effect of tax uncertainty on the probability of dividend payouts (Panel A) and dividend levels (Panel B). Panel A (B) includes the full sample of dividend-paying and non-dividend-paying firms (the subsample of dividend-paying firms). In both Panels, I estimate regressions by annual quartiles of *SD_CASH_FLOW*. Panel A (B) reports marginal effects for a logit regression (coefficients for an OLS regression) based on Equation (1). I calculate marginal effects while holding continuous variables at their means. All variables are standardized to have a mean of zero and a standard deviation of one prior to fitting regressions. In Panel A (B), the dependent variable, *DIV,* is an indicator variable with the value of one if a firm declares dividends in year *t*, and zero otherwise (the natural logarithm of dividends in year *t* and scaled by total assets in year *t*). All regressions are estimated with year and industry-fixed effects. I report heteroscedasticity-robust standard errors clustered by firm in parentheses. I define variables in the Appendix. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively (two-tailed).

Table 14
Tax Uncertainty and Dividend Payouts by Quartiles of *CASH_ETR*

Panel A: Tax Uncertainty and the Probability of Dividend Payouts

	(1) ME (SE)	(2) ME (SE)	(3) ME (SE)	(4) ME (SE)
Subsamples	*Quartile 1*	*Quartile 2*	*Quartile 3*	*Quartile 4*
Variables	*DIV*	*DIV*	*DIV*	*DIV*
TAX_UNCERTAINTY	-0.008	-0.081***	-0.166***	-0.110***
	(0.046)	(0.071)	(0.079)	(0.080)
Additional Controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y
Observations	8,188	8,182	8,183	8,177
Likelihood Ratio	-3,532	-3,874	-4,037	-3,793
Pseudo R^2	0.258	0.314	0.285	0.310

Panel B: Tax Uncertainty and Dividend Levels

	(1) Coef. (SE)	(2) Coef. (SE)	(3) Coef. (SE)	(4) Coef. (SE)
Subsamples	*Quartile 1*	*Quartile 2*	*Quartile 3*	*Quartile 4*
Variables	*DIV*	*DIV*	*DIV*	*DIV*
TAX_UNCERTAINTY	-0.017	-0.114***	-0.162***	-0.166***
	(0.025)	(0.034)	(0.032)	(0.034)
Additional Controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y
Observations	3,404	3,397	3,401	3,392
Likelihood Ratio	-4,477	-4,048	-3,836	-4,106
Adjusted R^2	0.297	0.321	0.413	0.393

Note: This table presents regression results for tests that examine the effect of tax uncertainty on the probability of dividend payouts (Panel A) and dividend levels (Panel B). Panel A (B) includes the full sample of dividend-paying and non-dividend-paying firms (the subsample of dividend-paying firms). In both Panels, I estimate regressions by annual quartiles of *CASH_ETR*. Panel A (B) reports marginal effects for a logit regression (coefficients for an OLS regression) based on Equation (1). I calculate marginal effects while holding continuous variables at their means. All variables are standardized to have a mean of zero and a standard deviation of one prior to fitting regressions. In Panel A (B), the dependent variable, *DIV,* is an indicator variable with the value of one if a firm declares dividends in year *t*, and zero otherwise (the natural logarithm of dividends in year *t* and scaled by total assets in year *t*). All regressions are estimated with year and industry-fixed effects. I report heteroscedasticity-robust standard errors clustered by firm in parentheses. I define variables in the Appendix. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively (two-tailed).

Table 15
Tax Uncertainty and Share Repurchases

	(1)	(2)	(3)
	Coef. (SE)	ME	Coef. (SE)
Variables	*REPU*		*REPU*
TAX_UNCERTAINTY	-0.195***	-0.048	-0.083***
	(0.023)		(0.021)
CASH_ETR	0.133***	0.033	0.115***
	(0.019)		(0.019)
CASH_FLOW	0.282***	0.069	0.477***
	(0.024)		(0.022)
SD_CASH_FLOW	-0.094***	-0.023	-0.025
	(0.022)		(0.020)
CASH	0.116***	0.029	0.104***
	(0.029)		(0.024)
MTB	0.059**	0.014	0.219***
	(0.027)		(0.021)
SALES_GROWTH	-0.161***	-0.040	-0.068***
	(0.018)		(0.018)
ASSET_GROWTH	-0.252***	-0.062	-0.381***
	(0.018)		(0.018)
RE_TE	0.275***	0.068	0.158***
	(0.028)		(0.023)
AGE	0.023	0.006	-0.064***
	(0.025)		(0.022)
SIZE	0.479***	0.118	0.195***
	(0.032)		(0.025)
LEVERAGE	-0.077***	-0.019	-0.147***
	(0.026)		(0.023)
NOL	0.046**	0.011	-0.011
	(0.021)		(0.020)
R&D	0.027	0.007	0.222***
	(0.028)		(0.022)
SGA	0.068**	0.017	0.031
	(0.032)		(0.028)
ADVERTISING	0.082***	0.020	0.009
	(0.027)		(0.023)
CAP_INTENSITY	-0.099***	-0.024	-0.180***
	(0.028)		(0.026)
Intercept	0.769***		-3.705***
	(0.068)		(0.058)
Year FE	Y		Y
Industry FE	Y		Y
Observations	31,145		17,288
Likelihood Ratio	-18,894		-33,174
Pseudo/Adjusted R^2	0.117		0.260

Note: This table presents regression results for tests that examine the effect of tax uncertainty on share repurchases. Columns 1-2 (3) include a sample of share-repurchasing and non-share-repurchasing firms (share-repurchasing firms). Columns 1 and 2 report coefficients and marginal effects for a logit regression, respectively and column 3 coefficients for an OLS regression, all based on Equation (1). I calculate marginal effects while holding continuous variables at their means. All variables are standardized to have a mean of zero and a standard deviation of one prior to fitting regressions. In columns 1-2 (3) the dependent variable, *REPU,* is an indicator variable with the value of one if a firm repurchases shares in year *t*, and zero otherwise (the natural logarithm of share repurchases in year *t* and scaled by total assets in year *t*). All regressions are estimated with year and industry-fixed effects. I report heteroscedasticity-robust standard errors clustered by firm in parentheses. I define variables in the Appendix. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively (two-tailed).