Does Economic Uncertainty About the Tax Cuts and Jobs Act Affect Investors' Information Asymmetry?

ABSTRACT

This paper evaluates whether economic uncertainty about the Tax Cuts and Jobs Act of 2017 (TCJA) is associated with an increase in information asymmetry. I use key legislative events preceding the enactment of the TCJA as an exogenous shock to firms' information environments to capture economic uncertainty. Overall, I find that economic uncertainty around the TCJA's legislative events leads to greater information asymmetry between investors. From cross-sectional analyses of pre-passage TCJA event dates, I find that information asymmetry increases more for firms with higher exposure to TCJA policy change related to interest expense, while the increase in information asymmetry is less pronounced for firms with higher exposure to policy changes related to capital investments and tax rates. These results suggest that investors view the financial statement effects of policy changes resulting in increases to bonus depreciation and reductions to corporate tax rates as more transparent than those limiting interest expense deductions. Overall, this study identifies a significant cost (i.e., increased information asymmetry) to some investors that occurred during the development stages of the TCJA bill.

Keywords: Tax Cuts and Jobs Act; uncertainty; information asymmetry; tax policy.

1. Introduction

The Tax Cuts and Jobs Act (TCJA) of 2017 is the most expansive change to U.S. federal corporate tax law since the Tax Reform Act (TRA) of 1986. The monetary costs of the TCJA have been discussed by members of Congress. For example, in April 2018, the Congressional Budget Office estimated that the TCJA will raise the federal debt by $1.889 trillion from 2018-2027.[1] Tax researchers have also started to assess monetary costs of the TCJA on financial statements. Chen, Erickson, Harding, Stomberg, and Xia (2019) find that the average (median) firm recognized $77.3 ($9.0) million tax benefit (expense) due to the TCJA. While monetary costs of the TCJA like nonrecurring tax costs are important to investigate, federal corporate tax legislation can also produce other substantial costs to external stakeholders. My study examines an important effect of the TCJA that may create large costs for stakeholders, that higher economic uncertainty about proposed tax policy changes from the TCJA is associated with greater information asymmetry between sophisticated and unsophisticated investors.

Economic uncertainty, or uncertainty about how each proposed tax policy differentially impacts a firm's profitability, prior to passage of the TCJA arises from three sources of complexity. One source results from the challenge of estimating the financial statement impact of specific tax policy changes in the TCJA irrespective of how firms respond to these changes. For example, a TCJA proposed policy that reduces the corporate tax rate from 35% to 21% creates a larger tax benefit for firms with higher effective tax rates. For these firms, investors may face more economic uncertainty to estimate the re-measurement of net deferred tax asset/liability due to the tax rate change. A second source could be complexity in implementing the policy change that results from a lack of clarity in the regulations. Months after the TCJA's enactment, the American Institute of

[1] https://www.taxpolicycenter.org/taxvox/cbo-thinks-tcja-will-cost-433-billion-more-last-decembers-estimate-what-happened

CPAs (AICPA) requested that the Internal Revenue Service (IRS) provide computational and definitional guidance for several TCJA policy changes.[2]

A third contributor to greater economic uncertainty is the difficulty in anticipating how firms will alter their behavior in response to a specific policy change. For example, investors could have more economic uncertainty about whether firms will increase capital investments (and whether any increase is optimal) in order to take advantage of TCJA policy increasing bonus depreciation. These potential causes of economic uncertainty leading up to the adoption of the TCJA could motivate investors to engage in information gathering activities. Specifically, in response to a shock to economic uncertainty resulting from proposed changes in the TCJA, sophisticated investors may exert more effort and employ better resources to gather information about those changes. If sophisticated investors gain superior information, an adverse-selection problem will occur in the form of increased information asymmetry between investors.

Higher information asymmetry can create a substantial cost for market participants that want to sell or buy shares of firms that are more exposed to the tax policy changes of the TCJA. More specifically, as sophisticated investors trade on superior information, uninformed investors and market makers guard against potential losses from trading with more informed investors by price protecting (e.g., Chen, Hepfer, Quinn, and Wilson 2018; Amiram, Owens and Rozenbaum 2016).[3] For example, investors will sell their shares at a premium and market makers will widen the bid-ask spread for the higher risk of trading with more informed participants. Preceding the enactment of the TCJA, if firms with greater exposure to proposed tax policy changes experience higher information asymmetry, investors should demand higher equity risk premiums on these

[2] https://www.aicpa.org/press/pressreleases/2018/aicpa-offers-recommendations-on-2018-2019-irs-guidance-priority.html

[3] I use the terms “sophisticated” and “informed” investors interchangeably throughout the paper. I do the same for the terms “unsophisticated” and “uninformed” investors.

firms' stocks which increases the cost of capital for these firms (e.g., Verrecchia 2001). Further, higher information asymmetry could increase the losses that uninformed investors experience from trading with informed investors on stocks that are exposed to TCJA policies. These losses would push uninformed investors towards less frequent trading on stocks with greater TCJA exposure and thus lower stock liquidity (e.g., Nagar, Schoenfeld, and Wellman 2019).

Economic uncertainty and information asymmetry around the TCJA are topics of interest to regulators and standard-setters. The Securities and Exchange Commission (SEC) issued Staff Accounting Bulletin (SAB) 118 on the same day that the TCJA was passed on December 22, 2017. Part of the SEC's motivation to issue SAB 118 was to reduce uncertainty about the application of Accounting Standards Codification (ASC) Topic 740 for the effects of the TCJA on financial statements. Also, Financial Accounting Standards Board (FASB) staff released Q&A documents on January 2018 to address implementation issues for the international provisions of the TCJA.

The TCJA is a unique setting to examine the effect of economic uncertainty on information asymmetry. Prior research finds that economic uncertainty for macro-level economic (Nagar et al. 2019) and tax policies (Brown, Lin, Moore, and Wellman 2017) relates to higher information asymmetry. However, these studies do not distinguish between specific economic (e.g., tax, debt, health, etc.) or tax (e.g., individual or corporate) policies. Other research finds that firms experience greater uncertainty in the pre-enactment period of a tax law change in relation to a single tax policy change (Howard and Sinha 2019). My study adds to the literature by using the TCJA as a setting to examine micro-level economic uncertainty about the impact of TCJA components (i.e., corporate tax policies) on firm value. Further, the TCJA setting introduces several major policies in a close time frame to one another. This feature is useful to identify how

proposed economic policies with varying levels of complexity from one another affect the positive relationship between economic uncertainty and information asymmetry.

I estimate empirical equations that regress information asymmetry proxies on tax-related attributes, TCJA event dates, and control variables. Following Gaertner, Hoopes, and Williams (2020), I identify as my event dates six legislative developments leading up to the TCJA's enactment that draw the most public attention. Each TCJA event serves as a potential shock to economic uncertainty. To create my TCJA event window, I identify trading days [-1, 1] around each event date. I compare information asymmetry in each event date to that in the non-event window of trading days [-191, -3] before the first event. To operationalize information asymmetry, I use two measures: the bid-ask spread estimator developed by Corwin and Schultz (2012) and abnormal idiosyncratic volatility from Johnson and So (2018).

My sample contains 211,400 daily observations of 849 U.S. firms for the year 2017. To examine whether greater economic uncertainty about tax policy in the TCJA increases information asymmetry, I conduct two analyses. First, I use an ordinary least squares (OLS) equation to regress an information asymmetry proxy on an indicator variable set to one when the date falls within the six TCJA event windows and control variables. The first analysis shows an overall increase in information asymmetry during the short windows surrounding the TCJA event dates. This suggests that economic uncertainty about proposed TCJA policies results in higher information asymmetry.

Second, and more important, I evaluate whether economic uncertainty about specific proposed TCJA policies is associated with information asymmetry in the cross-section of firms. The second analysis uses six proxies of tax-related attributes to identify firms that are more exposed to four salient TCJA policies: the reduction in the corporate tax rate affects firms with high cash and Generally Accepted Accounting Principles (GAAP) effective tax rates (ETR), the

interest deduction limitation influences firms with high interest expenses, the increase in bonus depreciation impacts firms with high capital expenditures, and the change in foreign tax structure affects firms with large foreign operations and high profits from foreign activities. I use an OLS equation that regresses an information asymmetry proxy on a TCJA indicator variable, a tax-related attribute, an interaction term of TCJA with the tax-related attribute, and control variables.

I find that high interest expense firms experience incrementally higher information asymmetry at TCJA event dates relative to firms less affected by limits placed on interest deductions under the TCJA. This suggests that investors in these firms view the policy change related to interest expense carryforwards as contributing to greater economic uncertainty. In contrast, for firms more affected by the bonus depreciation policy change (i.e., high capital expenditure firms), information asymmetry increases less than for firms less affected by this change but potentially affected more by the other policy changes. This is likely due to less complexity in the financial statement effect of temporary differences from bonus depreciation. I also find that high GAAP ETR firms experience a relatively lower increase in information asymmetry on TCJA event dates than do firms less affected by the decrease in corporate tax rates (i.e., low GAAP ETR firms). As such, a policy reducing the tax rate may create a large tax benefit with a financial statement effect that is more transparent to investors than the effects of other TCJA policies. Finally, I find no evidence of economic uncertainty about TCJA foreign tax policies leading to a change in information asymmetry, which does not support concerns from FASB Q&A documents about uncertainty on how to implement new foreign tax policies to financial statements.

This study makes three important contributions. First, my study answers the call from Brown et al. (2017) for future research on investor sensitivity to uncertainty arising from the possible impact of different tax policy proposals on firm profitability. I also identify a unique

setting, the TCJA, in which more transparent proposed tax policies (e.g., increasing bonus deprecation for capital expenditures) work against an increase in information asymmetry. Second, the findings of this study generalize to other settings that involve regulation changes. For example, the effective date of the new revenue recognition standard (i.e., ASU 2014-09) was delayed until after December 15, 2017 for public business entities. Between the May 2014 issuance of ASU 2014-09 and December 2017, the FASB issued five Updates to address uncertainty about implementing the new standard.[4]

Finally, my paper should be informative to regulators, standard-setters, and policymakers. The SEC and FASB issued clarifying documents (e.g., SAB 118) on or after the enactment date of the TCJA to help reduce uncertainty about TCJA tax policy changes. This study shows that regulators and standard-setters should consider addressing economic uncertainty earlier (i.e., during development stages) when changing tax policy. Slemrod (2018) explains that academic tax experts and economists played a huge role in the development of the Tax Reform Act of 1986, but played almost no role in the TCJA legislative process. Greater involvement and communication in the legislative process among academic experts, economists, and legislators could help to reduce economic uncertainty for investors about adopting economic policies. Further, this study highlights that information asymmetry between investors is a major cost of proposed economic policies created in the development stages of the TCJA bill. Higher information asymmetry is associated with several capital market consequences including lower stock liquidity, larger equity risk premiums that raise a firm's cost of capital, and greater corporate tax avoidance (e.g., Verrecchia 2001; Easley and O'Hara 2004; Bhattacharya, Desai, and Venkataraman 2013; Chen and Lin 2017).

[4]https://www.fasb.org/cs/ContentServer?c=FASBContent_C&cid=1176169274515&d=&pagename=FASB%2FFASBContent_C%2FCompletedProjectPage

The rest of my paper is organized as follows: Section 2 presents related literature and motivates the hypotheses. Section 3 discusses the empirical measures, sample selection process, and research design. Section 4 reports the descriptive statistics and empirical results. I provide my conclusions in Section 5.

2. Prior Literature and Hypothesis Development

2.1 *Literature on Economic Uncertainty and Capital Markets*

Pastor and Veronesi (2013) model how market participants respond to news about what the government's future economic policy choices might be. Investors learn about the economic costs of proposed government policies by observing events that are exogenous to firms' operations (e.g., political debates). If proposed economic policies are perceived as heterogeneous a priori relative to current policies, agents (e.g., investors) evaluate each policy with a different level of economic uncertainty, or uncertainty about how each proposed policy may differentially impact a firm's profitability. In my study, market perception of policy heterogeneity a priori is important because the shift in tax policies from the Tax Reform Act of 1986 to the TCJA was significant.[5]

Pastor and Veronesi (2013) assume that agents are identically informed about policy changes. As in Nagar, Schoenfeld, and Wellman (2019), I relax the aforementioned assumption to examine the case in which economic uncertainty pushes some investors to exert more effort and bring more skills to information gathering activities. More informed investors that use newly acquired information to trade with less informed investors create adverse-selection, which increases information asymmetry about a firm's valuation (Verrecchia 2001). Several studies find that some investors engage in greater information gathering activities than others to achieve private benefits. For example, Gao and Huang (2016) find that hedge fund managers at politically

[5] For instance, under the TRA, firms could deduct 100% of interest expenses, while under the TCJA, firms can only deduct interest expenses up to 30% of adjusted taxable income.

connected hedge funds experience abnormal returns on securities. Also, Bushee, Jung, and Miller (2017) find that future trading profits are significantly higher following conferences that allow private meetings between investors and managers than conferences without private meetings.

Some studies examine macro-level uncertainty around economic policies. These studies use Baker, Bloom, and Davis' (2016) news-based measures of economic policy uncertainty (EPU) and tax policy uncertainty (TPU). Nagar, Schoenfeld, and Wellman (2019) show that higher EPU is associated with larger bid-ask spreads and greater Amihud (2002) illiquidity. Brown, Lin, Moore, and Wellman (2017) find that high macro-level TPU periods are positively associated with both stock return volatility and dispersion in analysts' long-term growth forecasts.

EPU and TPU are broad uncertainty measures. First, these measures do not distinguish between specific economic (e.g., debt, health, etc.) or tax (e.g., individual or corporate) policies. Second, Baker, Bloom, Canes-Wrone, Davis, and Rodden (2014) describe the drivers of EPU as being fluctuations in policy due to increased government spending and political polarization. In contrast to macro-level uncertainty measures, I evaluate micro-level economic uncertainty about the financial impact of TCJA components (i.e., proposed corporate tax policies) on firm value.

A growing literature examines economic uncertainty around temporary tax law extensions/expirations and U.S. tax reform. Bratten and Hulse (2016) find that investors respond in a delayed manner to temporary research and development (R&D) tax credit extensions because the quarterly earnings impact of the retroactive effect is complex to compute.[6] Examining the Tax Reform Act of 1986, Howard and Sinha (2019) use the repeal of the investment tax credit to identify financially-sensitive firms to the TRA's approval. Employing analyst forecast properties, they show that uncertainty (complexity) effects precede (follow) the TRA's enactment.

[6] Similarly, Hoopes (2018) finds that abnormal trading volume and analysts' forecast errors are greater around quarterly earnings announcements for firms impacted by R&D tax credit expirations.

My study has notable differences from Howard and Sinha (2019). First, Howard and Sinha (2019) use the investment tax credit that is among the least complex provisions of the TRA (Plumlee 2003). In contrast, I use TCJA tax policy changes with varying levels of complexity such as highly complex foreign tax policies. Also, I expect that policy complexity contributes to higher economic uncertainty in the pre-TCJA period, while Howard and Sinha (2019) suggest that pre-TRA period uncertainty arises from the likelihood of the TRA's passage but not policy complexity. Finally, I do not expect that uncertainty about the likelihood of passage relates to information asymmetry because investors are exposed to legislative events at the same time and are unlikely to have an information advantage among each other. Instead, higher economic uncertainty can associate with greater information asymmetry because sophisticated investors may exert more effort and resources to understand the contents of proposed tax policies. Research suggests that sophisticated investors have a superior ability to process new information (e.g., new details on bonus depreciation) more quickly, which enables them to attain a temporary information advantage over other investors (e.g., Kim and Verrecchia 1994; Amiram, Owens, and Rozenbaum 2016).

2.2 *Literature on Stock Price Behavior and the TCJA*

My study contributes to literature on how the capital markets behave in response to the TCJA. Gaertner, Hoopes, and Williams (2020) find that Chinese firms experienced negative stock returns around pre-TCJA legislative events, while firms in other countries experienced positive stock returns. Wagner et al. (2018b) examine the cross-sectional stock price responses for firms that are more exposed to four proposed TCJA tax policy changes using proxies of tax-related attributes. They find that firms with stronger tax-related attributes experience heterogeneous stock responses for the two months before TCJA's enactment. Using more detailed analyses, Kalcheva,

Plečnik, Tran, and Turkiela (2020) also find varied stock price responses for firms with higher exposure to proposed TCJA policy changes on legislative events preceding the TCJA's enactment.

I use the pre-TCJA legislative events from Gaertner et al. (2020) and comparable proxies of tax-related attributes from Wagner et al. (2018b) and Kalcheva et al. (2020). However, I evaluate whether economic uncertainty about the TCJA's proposed policies results in an increase in information asymmetry between investors. Furthermore, the expectations for stock price reactions may not be the same expectations for information asymmetry effects. For example, Wagner et al. (2018b) show that high ETR firms received more positive stock price reactions (a positive outcome) than low ETR firms presumably from the reduction in the corporate tax rate from 35% to 21%. In contrast, high ETR firms may experience higher information asymmetry (a negative outcome) than low ETR firms because a larger expected tax benefit from a corporate tax rate reduction is more complex for investors to estimate.

Additionally, examining economic uncertainty in the pre-enactment period for the TCJA is important. In an efficient market, the anticipated economic effect of the TCJA on firm value is not impounded into the equity market all at once when the TCJA is enacted into law. Instead, every time that a legislative event increases the likelihood of the TCJA's enactment, the market impounds a fraction of the expected economic effect of the TCJA into stock prices. For example, imagine that we had two pre-enactment events as follows: (1) Event A changes the market expectation of the TCJA's enactment from 0% to 30%; (2) Event B changes the market expectation from 30% to 90%. I would expect that at Event A (Event B) the market will impound 30% (60%) of the total expected economic effect. The pre-TCJA legislative events serve as an exogenous shock to firms' information environments that captures economic uncertainty.

2.3 *Hypothesis Development*

In this paper, I argue that economic uncertainty about proposed tax policy changes in the TCJA is positively associated with information asymmetry between sophisticated and unsophisticated investors. Specifically, if economic uncertainty pushes sophisticated investors to exert more effort, skills, and resources to gather information on how a proposed tax policy change affects financial statements, then information asymmetry between investors may exist. Further, in the months preceding the enactment of the TCJA, major legislative events increasing the likelihood of enactment release new information about TCJA proposed policies that the market gradually impounds into stock prices. If sophisticated investors process the new information more quickly, then I would expect an increase in the level of information asymmetry between investors around legislative events.

On the other hand, economic uncertainty about proposed tax policy changes in the TCJA may not associate with information asymmetry for some reasons. First, external investors may not substantially disagree with each other on the possible financial statement impact of the TCJA's tax policy changes, which would produce negligible costs from information asymmetry. Second, if the market can anticipate and efficiently price the financial statement impact of TCJA policy changes, then the level of information asymmetry may not be significant during the events preceding the enactment of the TCJA. Research on whether investors anticipate the effect of policy changes in the TCJA is mixed. For example, using firms' financial statements, Wagner, Zeckhauser, and Ziegler (2020) find that investors do not fully impound actual recurring and nonrecurring financial statement impacts of the TCJA into stock prices in a two-month period leading up to the TCJA's enactment. In contrast, Donelson, Koutney, and Mills (2020) show that investors could use prior period financial statement disclosures (e.g., changes in deferred tax balances) to predict the TCJA's transitory impact from nonrecurring taxes on net earnings in the quarter of the TCJA's

enactment. However, since the SEC's intent for SAB 118 is to reduce uncertainty about applying ASC Topic 740 to TCJA tax policy changes, I state my first hypothesis in the alternative form:

H1: *Around events that make it more likely to enact the Tax Cuts and Jobs Act of 2017, the level of information asymmetry increases in response to these events.*

Next, I investigate whether greater economic uncertainty is associated with higher information asymmetry for firms that are expected to be more highly affected by individual TCJA policies. I examine the effect of each policy change separately. As a result, the effect on information asymmetry for firms expected to be more or less affected by a particular policy change will depend both on (i) the amount of economic uncertainty created by a particular policy change relative to the economic uncertainty created by the other policy changes under the TCJA and (ii) the extent to which firms identified as less affected by the particular policy change being examined are affected by all other policy changes. For example, one TCJA policy change I examine is the reduction in corporate tax rates. I expect high (low) ETR firms are more (less) affected by the corporate tax rate change. If the corporate tax rate change produces greater economic uncertainty than the other policy changes under the TCJA, then I would expect that high ETR firms would experience a greater increase in information asymmetry than low ETR firms. However, if other policy changes under the TCJA generate greater economic uncertainty than the corporate tax rate change and low ETR firms are more affected by those other policy changes, I could observe that high ETR firms experience an increase in information asymmetry from the corporate tax rate change but the increase would be less than that experienced by low ETR firms. As a result, while I expect an increase in economic uncertainty leading to greater information asymmetry for each TCJA policy change examined (discussed below), the relative magnitude of the increase for firms expected to be more or less affected depends on the factors discussed above.

2.3.1 Corporate tax rate reduction

One major policy change of the TCJA was the reduction in the statutory tax rate from 35% to 21%. A reduction in the corporate statutory tax rate has a more substantial effect on firms with higher effective tax rates. Specifically, the larger the expected tax benefit from the reduction in the tax rate, the greater will be the economic uncertainty about estimating both the total tax expense and re-measurement of deferred tax assets and liabilities for financial statements.[7] Chen and Koester (2020) examine the corporate tax reduction under the TCJA and find that analysts failed to incorporate in their GAAP earnings forecasts most of the one-period deferred tax adjustment for the quarter of the TCJA's enactment. The authors attribute this result to analysts' lack of forecasting effort. If incorporating the effect of a tax rate change requires substantial skill and effort, information asymmetry could increase because the cost will be less for investors with greater skills and resources (i.e., sophisticated investors). In this case, firms with a higher ETR are expected to experience an increase in information asymmetry over the TCJA event dates.

On the contrary, the effect of the corporate tax reduction on economic uncertainty could be mitigated by the fact that this policy change, relative to other policy changes in the TCJA, is less complex. Plumlee (2003) classifies six tax law changes in the Tax Reform Act of 1986 using the AICPA's tax-complexity index questionnaire. Using the questionnaire, Plumlee (2003) shows that the reduction in the statutory tax rate proposed in the TRA was the least complex of the six tax law changes. Further, Chen and Koester (2020) show that investors (in contrast to analysts) fully impound the one-period adjustment to re-measure deferred taxes from the reduction in the corporate tax rate into stock prices closely around the TCJA enactment date.

[7] Deferred taxes do not affect GAAP ETR or book earnings. However, prior studies support that the market prices firms' deferred tax accounts (Graham, Raedy, and Shackelford 2012). For instance, in President Donald Trump's November 2016 election period, Wagner, Zeckhauser and Ziegler (2018a) find that firms with large DTL (DTA) balances received more positive (negative) stock price reactions in anticipation of a proposed corporate tax rate cut.

I investigate whether the effect of the change in corporate tax rate policy increases uncertainty about estimating the total tax expense and re-measurement of deferred tax assets and liabilities for high ETR firms, leading to an increase in information asymmetry. However, the lower complexity of this policy change relative to other TCJA policy changes could result in a lesser increase in information asymmetry for high relative to low ETR firms during the TCJA events. This leads to my second hypothesis in the null form:

H2: *The positive association between information asymmetry and events that make it more likely to enact the Tax Cuts and Jobs Act of 2017 is not affected by firms' high exposure to a policy that reduces the corporate statutory tax rate.*

2.3.2 Interest expense deduction limits

Another important TCJA policy change limits the deduction that firms can take on net business interest expense to 30% of adjusted taxable income as of January 1, 2018. Interest expenses that are disallowed in the current year are carried forward indefinitely to future years, but under the same limitation rules.[8] Economic uncertainty may relate to incrementally higher information asymmetry because of the high complexity of the policy. The AICPA prepares a Guidance Priority List each year to encourage the Department of the Treasury (Treasury) and the IRS to pursue tax simplification. For both the June 2018 and June 2019 reports, the AICPA requested for computational, definitional, or other guidance for the interest deduction limitation policy (i.e., Section 163(j)).[9] Further, the AICPA issued a report on July 9, 2018 expressing that

[8] Firms first deduct current year business interest expense. If interest expense did not exceed the limitation, firms may deduct disallowed business interest expense carryforwards starting with the earliest year of carryforwards.
[9] The June 2018 and June 2019 Guidance Priority List reports can be found in the following links:
https://www.aicpa.org/content/dam/aicpa/advocacy/tax/downloadabledocuments/20180614-aicpa-2018-2019-priority-guidance-plan-list.pdf
https://www.aicpa.org/content/dam/aicpa/advocacy/tax/downloadabledocuments/20190605-aicpa-2019-2020-priority-guidance-plan.pdf

some areas of Section 163(j) affecting C corporations are unclear such as what types of interest income and expenses are treated as business interest.[10]

On the other hand, the increase in economic uncertainty could be mitigated if high interest expense firms reduce their expected levels of future debt holdings in response to the proposed policy limiting interest deductions. Carrizosa, Gaertner, and Lynch (2020) identify firms that are affected by the TCJA policy limiting interest deductions (i.e., affected firms). The authors find that following the enactment of the TCJA, affected firms decrease book leverage by reducing new U.S. domestic debt issuances. If lower book leverage implies a reduction in future debt holdings, affected firms would record less disallowed interest expense carryforwards, simplifying the estimation of disallowed interest expense carryforwards.

I investigate whether uncertainty about the financial impact of the interest expense deduction limitations will impact high interest expense firms leading to an increase in information asymmetry. While low interest expense firms are largely unaffected by the interest deduction limitation policy, they may be more affected by other TCJA policies that are more complex to estimate. I state my third hypothesis in the null form:

H3: *The positive association between information asymmetry and events that make it more likely to enact the Tax Cuts and Jobs Act of 2017 is not affected by firms' high exposure to a policy that limits business interest deductions.*

2.3.3 Foreign tax policy

The TCJA introduced several taxes that strongly affect firms with relatively higher foreign earnings and assets including the one-time "transition" tax, global intangible low-taxed income (GILTI), foreign-derived intangible income (FDII), and base erosion and anti-abuse tax (BEAT).

[10] https://www.aicpa.org/content/dam/aicpa/advocacy/tax/downloadabledocuments/20180709-aicpa-comments-notice-2018-28-sec-163j.pdf

Economic uncertainty may yield higher information asymmetry due to the high complexity of the foreign tax policies. On January 22, 2018, the FASB staff released Q&A documents that address issues with implementing the international provisions of the TCJA, and they specified that ASC Topic 740 does not provide clear guidance on the treatment of GILTI for financial statements.[11] Using the AICPA's tax-complexity index questionnaire, Plumlee (2003) shows that the foreign tax credit is one of the most complex tax law changes in the TRA of 1986. On PWC's 'Talking Tax' webcast, tax experts explain that the TCJA's one-time transition tax makes the computational rules of the foreign tax credit one of the most challenging areas of Section 965.[12] On the AICPA's Guidance Priority List for June 2018, the AICPA requested for computational, definitional, or other guidance for three foreign policies: FDII, foreign tax credits, and GILTI. For firms with large foreign earnings and assets in the period preceding the TCJA's enactment, investors should view the foreign tax policies as highly complex and experience greater economic uncertainty to estimate the financial statement effect of the policies for these firms.

In contrast, economic uncertainty could be reduced if the foreign tax policies do not substantially change the federal tax burden for firms with high foreign earnings and assets. Dyreng, Gaertner, Hoopes, and Vernon (2020) isolate firms that are most likely to be affected by TCJA international provisions that hinder firms from profit shifting and base erosion (i.e., mainly GILTI and BEAT). Except for one case, the authors find that affected firms do not experience a substantial change on federal taxes paid for foreign earnings after the TCJA. I investigate whether high foreign earnings and assets firms experience an increase in information asymmetry, recognizing that while low foreign earnings and assets firms are less affected by the foreign tax policies, they may be

[11] https://www.fasb.org/jsp/FASB/FASBContent_C/NewsPage&cid=1176169885422

[12] GILTI also affects the computation of the foreign tax credit. More details are found in the webcast link below: http://usblogs.pwc.com/industrialinsights/2018/10/30/talking-tax-rewind-tax-and-trade-policy-gilti-regs-and-toll-charge-updates/

more affected by other TCJA policies that are more complex to estimate. I state my fourth hypothesis in the null form:

H4: *The positive association between information asymmetry and events that make it more likely to enact the Tax Cuts and Jobs Act of 2017 is not affected by firms' high exposure to policies that change the tax structure on foreign earnings and assets.*

2.3.4 Bonus depreciation

Finally, the TCJA temporarily increased tax benefits for firms that make capital expenditures after September 27, 2017, and before January 1, 2023. Specifically, the TCJA increased first-year bonus depreciation from 50% to 100% for qualified property with a recovery period of 20 years or less (e.g., newly purchased machinery).[13] If firms with relatively higher capital expenditures choose to increase investments after September 27, 2017 to take advantage of full depreciation for tax purposes, then higher bonus depreciation creates larger temporary differences that affect the current tax payable/receivable and net deferred tax asset/liability.[14] Because high capital expenditure firms may increase investments to apply more bonus depreciation, investors should experience more economic uncertainty about estimating the impact of larger temporary differences on the financial statements for these firms. If the financial statement impact of the bonus depreciation policy is complex to estimate, then high capital expenditure firms should experience incrementally higher information asymmetry during TCJA events relative to low capital expenditure firms that are mostly unaffected by the policy.

In contrast, economic uncertainty may be mitigated if investors expect that firms with relatively higher capital expenditures will not substantially increase their levels of investment. For

[13] If qualified property is placed in service after 2022, bonus depreciation is phased down by 20% annually.
[14] Examining conference calls in the first quarter of 2018, Hanlon, Hoopes, and Slemrod (2019) find that 22% of their sample of S&P 500 firms mention plans to increase investment due to the TCJA, and 10% of the total sample specified increased investments in "new" capital expenditures.

example, Beyer, Downes, Mathis, and Rapley (2019) find that firms with higher levels of foreign cash in the pre-TCJA period do not increase capital expenditures in the post-TCJA period, with the exception of such firms with marginally weak financial health. If high capital expenditure firms are expected to refrain from increasing investments, uncertainty about the effects of bonus depreciation could be modest.

The bonus depreciation policy may also yield only a modest increase in economic uncertainty if it is not complex. The Joint Committee on Taxation (JCT), together with the IRS and Treasury, prepared a complexity analysis of several TCJA policies. In the context of small businesses, the complexity analysis explains that firms' reporting requirements to tax authorities for the new bonus depreciation policy are unchanged, and the same Form 4562 is used to report capital asset purchases as before the TCJA's enactment.[15] The analysis implies that the TCJA's bonus depreciation policy is not complex.

I expect that the bonus depreciation policy has a greater effect on high relative to low capital expenditure firms, and so I investigate whether the bonus depreciation policy leads to an increase in information asymmetry for high capital expenditure firms. However, the relative increase in information asymmetry for high capital expenditure firms depends on how other TCJA policy changes affect the low capital expenditure firms. I state my fifth hypothesis in the null form:

H5: *The positive association between information asymmetry and events that make it more likely to enact the Tax Cuts and Jobs Act of 2017 is not affected by firms' high exposure to a policy that increases bonus depreciation.*

3. Sample Selection, Variable Descriptions, and Research Design

3.1 *Measures of Information Asymmetry*

[15] The JCT's tax complexity analysis begins on page 676 of the following report linked below: https://www.govinfo.gov/content/pkg/CRPT-115hrpt466/pdf/CRPT-115hrpt466.pdf

My primary measure of information asymmetry is an estimator of the bid-ask spread using daily high and low prices as developed by Corwin and Schultz (2012). The estimator derives a stock's bid-ask spread as a function of high-low price ratios for two consecutive single days and for a single two-day period. Corwin and Schultz (2012) note that the bid-ask spread (or high-low) estimator captures liquidity at a broader level than the bid-ask spread. Specifically, the high-low estimator reflects both the bid ask spread and transitory volatility that arises in cases such as temporary price pressure from large orders that could push for executions at daily high or low prices. The estimator is also corrected for overnight price changes that could lead to underestimation of the spread component, for negative spreads, and for infrequently traded stocks. Importantly, the high-low estimator offers a higher correlation with Trade and Quote (TAQ) effective spreads than other low frequency spread estimators in the cross-section, and the high-low estimator has an approximately 0.9 correlation with simulated true spreads.

As an alternative proxy of information asymmetry, I use abnormal idiosyncratic return volatility (IDIOV). To compute the measure, I follow similar procedures to those used in Johnson and So (2018) and Barber, De George, Lehavy, and Trueman (2013). First, I take the residual of a firm-specific market model regression of daily excess returns for stock *i* on three lags of the market return.[16] Next, I derive IDIOV for three-day event windows [-1, 1] around all TCJA events combined. IDIOV is the square root of the ratio of the squared residual on each day *d* (i.e., event window residuals) divided by the average squared residual from [-191, -3] trading days from the first event (i.e., non-event window base residual), and subtracting one. Roll (1988) shows that idiosyncratic stock returns mainly reflect how informed traders incorporate private (rather than

[16] Johnson and So (2018) and Barber et al. (2013) use three lags of the market return to mitigate issues related to stale prices of thinly traded stocks. As a robustness check, I also use the Fama and French (2015) five-factor model to compute the residual because the model captures variation in average returns associated with investment and profitability. The results are quantitatively similar when I use the five-factor model to estimate the residual.

public) information into stock prices. As such, idiosyncratic return volatility captures how private information gathering activities affect stock prices (Armstrong, Balakrishnan, and Cohen 2012).

3.2 *Measures of Tax-Related Attributes and Event Dates*

To evaluate how individual TCJA policies affected firms' information environments, I use firm-level characteristics similar to those used in Kalcheva et al. (2020) and Wagner, Zeckhauser, and Ziegler (2018a, 2018b). Specifically, I proxy for firms' tax attributes with the following variables: (1) capital expenditures ratio; (2) interest expenses ratio; (3) percent profits from foreign activities; (4) foreign operations in percent of assets; (5) cash ETR; (6) GAAP ETR.

The firm-level characteristics are used to identify firms that are most likely to be affected by the four specific TCJA policies of interest. The capital expenditures ratio helps to evaluate companies affected by the policy increasing first-year bonus depreciation from 50% to 100% for qualified property. The interest expenses ratio helps to assess firms influenced by the policy limiting interest deductions to 30% of adjusted taxable income. Next, percent profits from foreign activities and foreign operations in percent of assets are used to identify firms affected by new taxes on foreign earnings and assets such as the one-time "transition" tax. Finally, cash and GAAP ETR are used to evaluate companies influenced by the reduction in the statutory tax rate from 35% to 21%. Because I expect that economic uncertainty has a larger effect on information asymmetry when firms are more exposed to TCJA policies, I split each proxy at the median and expect stronger effects for firms that are at the top 50 percentile of each variable.

For my TCJA event dates of interest, I rely on those used in Gaertner, Hoopes, and Williams (2020). The authors identify 17 legislative events that lead to the enactment of the TCJA. Using Google Trends index to measure the relative volume of search traffic for the word "tax reform", the authors highlight six (of the 17) events as drawing the most public interest. Further,

they validate the event dates using cross-sectional tests consistent with Wagner et al. (2018b). The six events comprise of the following legislative developments: (1) unveiling the Unified Framework for Tax Reform; (2) introduction of the TCJA in the House; (3) House passage of the TCJA; (4) Senate passage of the TCJA; (5) report by the joint conference committee; (6) Senate final agreement to the TCJA. In Appendix B, I provide the 17 events and corresponding dates.

3.3 *Research Design*

Using the legislative events leading up to the enactment of the TCJA, I evaluate the relation between economic uncertainty about the proposed policies in the TCJA and information asymmetry. Further, on event dates preceding the TCJA's enactment, I examine the association between economic uncertainty about specific proposed TCJA policies and information asymmetry in the cross-section of firms. In this section, I describe my research methods for both analyses.

The event period is a three-day window or [-1, 1] trading days centered around each event date, which is day zero. Each event date examined is favorable, meaning that event dates increase the likelihood for the TCJA to be enacted. I use TCJA events as an exogenous shock to firms' information environments to capture economic uncertainty. Next, I estimate an expected average bid-ask spread for each firm over the nine-month period from January 3 to September 22, 2017, (i.e., estimation period) before the first event on September 27, 2017.[17] As explained earlier, abnormal idiosyncratic volatility uses the same event window as that of bid-ask spread, and the same estimation period (i.e., [-191, -3] trading days from the first event) to compute a non-event expected level of volatility for calculating IDIOV.

For the primary analyses, I employ the following ordinary least squares (OLS) equations:

[17] President Donald Trump's election in November 8, 2016 influenced tax policy expectations that affected firm value (Wagner et al. 2018a). To avoid contamination effects from the election on my estimation window, I begin the estimation period at the start of January 2017.

$$S_{i,t} = \alpha + \beta\, TCJA_{i,t} + \sum_{k=1}^{n} \delta_k\, Controls_{i,k} + Industry_i + \varepsilon_{i,t} \quad (1)$$

$$S_{i,t} = \alpha + \beta\, TCJA_{i,t} + \gamma\, FTA_i + \theta\, TCJA \times FTA + \sum_{k=1}^{n} \delta_k\, Controls_{i,k} + \sum_{k=1}^{n} \lambda_k\, Controls_k \times FTA_i + Industry_i + \varepsilon_{i,t} \quad (2)$$

In both equations 1 and 2, $S_{i,t}$ represents either bid-ask spread or abnormal idiosyncratic return volatility for stock *i* on day *t*; α reflects the scalar intercept term; $Industry_i$ is a set of industry fixed effects from Fama-French 12 industry classifications; $\varepsilon_{i,t}$ reflects the random disturbance or error term. Importantly, $TCJA_{i,t}$ is a binary variable that includes the composite set of event windows for the six TCJA-related events. Specifically, $TCJA_{i,t}$ equals one for 18 trading days that comprise the event windows for each of the six legislative events, and equals zero for the estimation period. For equation 2 only, FTA_i is an indicator variable set to one for values above the median for each of the six firms' tax attributes: (1) capital expenditures ratio; (2) interest expenses ratio; (3) percent profits from foreign activities; (4) foreign operations in percent of assets; (5) cash ETR; (6) GAAP ETR. Each of the proxies is calculated using fiscal year-end 2016 financial statement data because using fiscal year-end 2017 annual data would be confounded with TCJA-related events.

The variable $Controls_{i,k}$ represents the set of control variables *k* for firm *i* that proxies for determinants of either bid-ask spread or abnormal idiosyncratic return volatility. Similar to Nagar, Schoenfeld, and Wellman (2019), I include the following control variables in equations 1 and 2 when bid-ask spread is the dependent variable: squared returns, share turnover, log of dollar trading volume, and log of stock price. Alternatively, as in Rajgopal and Venkatachalam (2011), I use the following control variables in equations 1 and 2 when abnormal idiosyncratic return volatility is the dependent variable: cash flow volatility, operating performance, stock return performance, size, book-to-market ratio, and leverage. All of the variables for equations 1 and 2

are defined in Appendix A. Finally, in both equations, I cluster standard errors by firm to correct for cross-sectional dependency.

In equation 1, $TCJA_{i,t}$ is the variable of interest. The coefficient on $TCJA_{i,t}$ (β) represents higher (or lower) levels of information asymmetry on event dates relative to non-event dates. For all firms in my sample, a positive and significant coefficient for $TCJA_{i,t}$ would show that the level of information asymmetry is significantly higher during important events leading up to the TCJA's enactment, which supports hypothesis one (H1). For equation 2, the interaction term $TCJA \times FTA$ is the variable of interest. For firms that are above median on a tax attribute, a positive (negative) value on the interaction term coefficient (θ) reflects incrementally higher (lower) levels of information asymmetry on event dates relative to firms that are below median on a tax attribute. A positive or negative and significant coefficient on the interaction term would reject the null for hypotheses two (H2), three (H3), four (H4), and five (H5).

3.4 *Data Collection and Sample Selection*

I use annual Compustat to obtain data on firm-specific characteristics for fiscal year-end 2016. Next, I collect data for computing daily bid-ask spread, abnormal idiosyncratic return volatility, and stock return based measures from the Center for Research in Security Prices (CRSP). For a robustness check, I use the Fama-French (2015) five factors available on Dr. Kenneth French's website to compute the measure of abnormal idiosyncratic return volatility.[18]

Table 1 summarizes my sample selection procedures. For CRSP observations, I eliminate firms with missing stock prices and returns, and remove firms that are not exchange-listed U.S. common stocks.[19] For Compustat observations, I remove firms with negative total assets, negative

[18] Dr. Kenneth French's website can be found in this link:
https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html
[19] The initial CRSP sample for calendar years 2015 to 2018 is 7,319,641 daily observations.

values for common shares outstanding, and closing stock prices below $1. Following Dyreng, Hanlon, Maydew, and Thornock (2017) and Wagner et al. (2018a), I also eliminate firms with non-positive pre-tax income and effective tax rates (i.e., cash and GAAP) at or above 100%. My combined starting sample of CRSP and Compustat observations from calendar years 2015 to 2018 is 1,991,978 daily observations. Next, I restrict my sample to calendar year 2017 to run my primary analyses including annual Compustat data from fiscal year-end 2016, which reduces my sample by 1,517,875 observations. Finally, I remove all firms that are missing data to compute the bid-ask spread estimator, tax-related variables, and control variables. The final sample contains 211,400 daily observations of 849 unique firms in the calendar year 2017.

<Insert Table 1 Here>

4. Descriptive Statistics and Empirical Results

4.1 *Descriptive Statistics*

Table 2 shows the descriptive statistics for the sample. To provide a clearer picture of the distributions for firms' tax-related attributes, I report the descriptive statistics for the continuous variables, instead of reporting that of the median split binary variables. Most of the continuous variables are winsorized at the 1% and 99% levels, with a few exceptions. To reduce the influence of extreme outliers and consistent with Wagner et al. (2018a), I winsorize four variables at 0 and 100: (1) cash ETR; (2) GAAP ETR; (3) percent profits from foreign activities; (4) foreign operations in percent of assets.

Panel A of Table 2 provides descriptive statistics on the bid-ask spread estimator, control variables in the bid-ask spread equation, TCJA indicator variable, and tax-related attribute variables. Panel B of Table 2 summarizes descriptive data on the abnormal idiosyncratic volatility measure and control variables for the IDIOV equation. The unconditional daily bid-ask spread

(*SPREAD_0*) has a mean (median) of 0.006 (0.004). Corwin and Schultz (2012) do not provide descriptive statistics for the daily *SPREAD_0* using CRSP data. Instead, in untabulated analyses, I replicate the descriptive statistics for the monthly bid-ask spread estimator that the authors provide on their Table III for comparison purposes (Corwin and Schultz 2012, 740). Panel C of Table 2 shows the industry breakdown by Fama-French 12 classifications. The business equipment (21.15%) and manufacturing (17.07%) industries make up the largest proportion of the sample.

<Insert Table 2 Here>

Table 3 presents Pearson correlation coefficients. Panel A of Table 3 shows a correlation matrix for all of the variables used in the bid-ask spread equations. Consistent with prior literature on bid-ask spread determinants, the control variables are significantly associated with bid-ask spreads at the 1% level in the predicted directions with one exception. Share turnover is positively correlated with spreads, while prior literature finds a negative correlation between the variables (e.g., Nagar et al. 2019).

Panel B of Table 3 provides a correlation matrix for the set of variables used in the IDIOV equations. With the exception of stock return performance (*MOMRET*) and an alternative measure of cash flow volatility (*CFOVOL*), the control variables are significantly associated with abnormal idiosyncratic volatility (*IDIOV*) at the 1% level.[20] However, the predicted directions between some of the control variables and *IDIOV* are inconsistent with prior studies using idiosyncratic volatility as a dependent variable (e.g., Rajgopal and Venkatachalam 2011). Specifically, firm size (*SIZE*) and book-to-market ratio (*BTM*) are positively correlated with *IDIOV*, but prior studies find a negative relation between each variable and idiosyncratic volatility. Also, panel B shows a negative correlation between cash flow volatility (*CFOSTD*) and *IDIOV*, while prior research

[20] In the IDIOV equations, I report results using *CFOSTD* as the measure of cash flow volatility, rather than using *CFOVOL*. Results are robust to replacing *CFOSTD* with *CFOVOL* as the measure of cash flow volatility.

shows a positive correlation between *CFOSTD* and idiosyncratic volatility. The likely reason that these correlations are significant, but not consistent with the predicted directions is that the construction of abnormal idiosyncratic volatility and idiosyncratic volatility measures is different. While both measures involve taking a residual from a market model or Fama and French factor model, computing *IDIOV* requires the additional steps to take the square root of the ratio of the daily squared residual over the average squared residual in a non-event window, and subtract one.

Finally, in panel B of Table 3, financial leverage (*LEV*) shares a correlation of 0.67 with the median split variable for interest expense ratio (*HINT*). To avoid possible multicollinearity concerns in the IDIOV equations, I exclude *LEV* as a control variable when *HINT* is examined as the proxy for a tax-related attribute.[21]

<Insert Table 3 Here>

4.2 *Empirical Results*

Using TCJA legislative developments, I examine whether economic uncertainty about tax policy in the TCJA is positively associated with information asymmetry. Table 4 reports the empirical results for testing H1 using equation 1 both before and after including control variables.

Columns (1) and (3) of Table 4 provide the univariate results using either bid-ask spread or abnormal idiosyncratic volatility as the dependent variable, respectively. In both cases, the coefficient on *TCJA* is positively associated with proxies for information asymmetry at the 1% level of statistical significance, which supports H1. Columns (2) and (4) of Table 4 present the results after including control variables when bid-ask spread or abnormal idiosyncratic volatility is the dependent variable, respectively. In support of H1, column (2) shows that the coefficient on *TCJA* is positive and significantly associated ($\beta = 0.0009$, $p < 0.01$) with bid-ask spread. As further

[21] Results are quantitatively similar after including *LEV* in the IDIOV equation that examines *HINT*.

support for H1, column (4) presents that the coefficient on *TCJA* is positive and significantly associated (β = 0.1004, p < 0.01) with abnormal idiosyncratic volatility. In summary, the results suggest that overall economic uncertainty about proposed TCJA policies is positively associated with information asymmetry during legislative developments preceding the TCJA's enactment.

<Insert Table 4 Here>

In the second analysis, I evaluate whether economic uncertainty about the implications of four proposed corporate tax policies in the TCJA positively associates with information asymmetry in the cross-section of firms. Table 5 reports the univariate results for testing H2 through H5 from equation 2. Panel A of Table 5 includes univariate OLS regressions using bid-ask spread (*SPREAD_0*) as the dependent variable. Panel A shows that the coefficient on the interaction term *HINT*TCJA* is positive and marginally significant (θ = 0.0003, p < 0.10) in relation to the bid-ask spread, which rejects the null in H3. I also find that the coefficient on the interaction term *HCAP*TCJA* is negative and significantly associated (θ = -0.0003, p < 0.05) with the bid-ask spread, which rejects the null in H5.

Panel B of Table 5 contains univariate OLS regressions that use abnormal idiosyncratic volatility (*IDIOV*) as the dependent variable. Panel B shows that the coefficient on the interaction term *HGETR*TCJA* is negative and significantly associated (θ = -0.0298, p < 0.05) with *IDIOV*, which rejects the null in H2. Panel B also provides two findings that confirm the results from panel A. Specifically, the coefficients on the interaction terms for *HINT* and *HCAP* are positively (θ = 0.0303) and negatively (θ = -0.0340) associated with *IDIOV* at the 5% level of statistical significance, respectively. The first finding for the *HINT* interaction term rejects the null in H3. The second finding for the *HCAP* interaction term rejects the null in H5.

<Insert Table 5 Here>

To further examine whether economic uncertainty about specific proposed TCJA policies is positively associated with information asymmetry, I perform analyses after including control variables in equation 2 to test H2 through H5. Table 6 presents the results. Panel A of Table 6 uses OLS regressions with bid-ask spread (*SPREAD_0*) as the dependent variable. On panel A, the results after including control variables are consistent with the univariate tests on panel A of Table 5. First, the coefficient on the interaction term *HINT*TCJA* is positive and marginally significant (θ = 0.0003, p < 0.10) in relation to *SPREAD_0*, which rejects the null in H3. For firms with above median interest expense ratios, I offer marginal evidence that information asymmetry is incrementally higher during TCJA events as compared to firms with below median interest expense ratios. Next, the coefficient on the interaction term *HCAP*TCJA* is negative and significantly associated (θ = -0.0003, p < 0.05) with *SPREAD_0*, which rejects the null in H5. While information asymmetry is higher for all firms on TCJA event dates relative to non-event dates, I find that information asymmetry is incrementally lower for firms with above median capital expenditure ratios relative to firms with below median capital expenditure ratios.

Panel B of Table 6 provides OLS regressions that use abnormal idiosyncratic volatility (*IDIOV*) as the dependent variable. On panel B, the results after including control variables are also consistent with the univariate tests on panel B of Table 5. Specifically, the coefficient on the interaction term *HGETR*TCJA* is negative and significantly associated (θ = -0.0299, p < 0.05) with *IDIOV*, which rejects the null in H2. While information asymmetry is higher for all firms during TCJA events relative to the non-event period, I find that information asymmetry is incrementally lower for firms with above median GAAP ETRs as compared to firms with below median GAAP ETRs. Also, the coefficients on the interaction terms *HINT*TCJA* and *HCAP*TCJA* are positively (θ = 0.0304) and negatively (θ = -0.0340) associated with *IDIOV* at

the 5% level of statistical significance, respectively. The first finding for the *HINT* interaction term rejects the null in H3, while the second finding for the *HCAP* interaction term rejects the null in H5. While information asymmetry is higher for all firms on TCJA event dates relative to non-event dates, I show that information asymmetry is incrementally higher (lower) for firms with above median interest expense (capital expenditure) ratios relative to firms below the median.

Finally, in both panels A and B of Table 6, the coefficients on the interaction terms *HFOPR*TCJA* and *HOPF*TCJA* are not significantly associated with *SPREAD_0* or *IDIOV*, which do not reject the null in H4. Although information asymmetry is higher for all firms during TCJA events relative to the non-event period, I find that partitioning firms at the median of either foreign profits or foreign operations does not relate to an incremental change in information asymmetry. As such, my primary results do not support concerns from the FASB Q&A documents that ASC Topic 740 is unclear on how to implement the new foreign tax policies.

To ensure that the Table 6 results for the foreign profits and foreign operations measures are not due to variable measurement, I perform two additional analyses. First, using equation 2, I compare the top quintile to the bottom quintile of each foreign measure. Specifically, I create an indicator variable of percent profits from foreign activities (*FOPROF*) equal to one for the top quintile of *FOPROF* and equal to zero for the bottom quintile of *FOPROF*. Then, I replace FTA_i in equation 2 with the new indicator variable of *FOPROF* and estimate equation 2 when either bid-ask spread or abnormal idiosyncratic volatility is the dependent variable. I follow the same procedure to analyze the foreign operations in percent of assets (*OPFAT*) measure.

For the second additional analysis, I use equation 2 to compare the top quartile to the bottom quartile of each foreign measure. Similar to the prior analysis, I create an indicator variable of *FOPROF* equal to one for the top quartile of *FOPROF* and equal to zero for the bottom quartile

of *FOPROF*. Next, I replace FTA_i in equation 2 with the new indicator variable of *FOPROF* and estimate equation 2 when either bid-ask spread or abnormal idiosyncratic volatility is the dependent variable. Then, I follow the same procedure to examine the *OPFAT* measure. In untabulated analyses, I find that the coefficients on the interaction terms between the new foreign indicator variables and TCJA are not significantly associated with *SPREAD_0* or *IDIOV*. In summary, comparing the top quintile (quartile) to the bottom quintile (quartile) does not affect the results for the foreign profits or foreign operations measures. Further, the additional analyses lessen concerns that the non-significant results may occur due to variable measurement issues.

<Insert Table 6 Here>

Overall, the analyses before and after including controls provide evidence that economic uncertainty about proposed corporate tax policies in the TCJA is associated with information asymmetry between investors. I make three inferences from the results. First, the negative interaction term coefficient for *HCAP*TCJA* suggests that the financial statement effect of temporary differences from bonus depreciation is relatively more transparent and less complex to investors than the effect of other TCJA policies. As such, firms with relatively larger capital expenditures are not expected to significantly increase their investment levels in response to the bonus depreciation policy and/or the policy is not complex for investors to incorporate the policy's effect on financial statements. Because high capital expenditure firms are more affected by the bonus depreciation policy, they experience incrementally lower (i.e., less of an increase in) information asymmetry relative to low capital expenditure firms during TCJA events. On TCJA event dates, low capital expenditure firms are less affected by the bonus depreciation policy but are more affected by other TCJA policies that are relatively more complex and less transparent.

Second, the positive interaction term coefficient for *HINT*TCJA* shows that estimating the financial statement effect of temporary differences from disallowed interest expense carryforwards is relatively less transparent and more complex to investors than the effect of other TCJA policies. For high interest expense firms, greater economic uncertainty about the proposed policy limiting interest deductions relates to incrementally higher information asymmetry on TCJA event dates relative to low interest expense firms that are less affected by the policy. Therefore, the interest deduction limitation policy is complex for investors to estimate its financial statement effect.

Finally, the negative interaction term coefficient for *HGETR*TCJA* suggests that estimating how a large tax benefit from a reduced corporate tax rate affects the re-measurement of net deferred taxes and total income tax expense is relatively more transparent and less complex to investors than the effect of other TCJA policies. As such, the corporate tax rate policy is not complex for investors to incorporate the policy's effect on financial statements. Because high GAAP ETR firms are more affected by the corporate tax rate policy, they experience incrementally lower information asymmetry relative to low GAAP ETR firms during TCJA events. On TCJA event dates, low GAAP ETR firms are less affected by the bonus depreciation policy but are strongly affected by other TCJA policies that are relatively more complex and less transparent.

5. Conclusion

Pastor and Veronesi (2013) postulate that when proposed economic policies are perceived as heterogeneous relative to established policies, agents will evaluate each proposed policy with a varying level of economic uncertainty, or uncertainty about how each proposed policy may differentially impact a firm's profitability. This study applies Pastor and Veronesi's (2013) theory to the market's perception of heterogeneity in proposed corporate *tax* policies because of the major shift in tax policies between the TRA of 1986 and the TCJA of 2017. However, unlike Pastor and

Veronesi (2013), I relax the assumption that agents (e.g., investors) are identically informed about policy changes. I suggest that economic uncertainty pushes sophisticated investors to use greater skills, resources, and effort to gather information about the financial implications of proposed TCJA policies on firm value. When more informed investors trade on superior information with less informed investors, an adverse-selection problem ensues and information asymmetry should grow between investors. Also, I focus on major legislative events that increase the likelihood of the TCJA's enactment because these events provide new information about TCJA proposed policies that the market gradually impounds into stock prices. Following Kim and Verrecchia (1994), if sophisticated investors attain an information advantage by processing new information more quickly, then I expect that information asymmetry increases around legislative events.

Recent studies on the TCJA explore how market expectations about tax rates impact firm value (e.g., Wagner, Zeckhauser, and Ziegler 2018a, 2018b). I extend this research by examining how economic uncertainty about the TCJA's proposed policies affects information asymmetry in capital markets. Economic uncertainty arises from three sources. One source is the complexity to estimate the financial statement impact of proposed *corporate* tax policies in the TCJA. Another source is the complexity of the proposed TCJA policies. A final source is the complexity to anticipate a firm's behavior in response to a specific policy change. Uncertainty is an important driver of capital market decisions such as a market maker's choice to widen bid-ask spreads for price protection, an investor's choice to seek costly private information for trading on stocks, and a manager's choice to provide voluntary disclosures (e.g., Verrecchia 2001; Nagar et al. 2019).

Using major legislative events preceding the TCJA's enactment, I find that overall economic uncertainty about proposed TCJA policies is positively associated with information asymmetry between investors. Next, I use firm-level proxies of tax-related attributes to identify

firms that are more exposed to tax policy changes. I find that economic uncertainty about specific proposed TCJA policies relates to information asymmetry in the cross-section of firms. Specifically, I find strong (limited) evidence that firms affected by the bonus depreciation (corporate tax rate) policy experience incrementally lower information asymmetry on TCJA event dates relative to firms that are largely unaffected by the policy but are more affected by other TCJA policies. Therefore, the TCJA policies increasing bonus depreciation and reducing the corporate tax rate work against an increase in information asymmetry. In contrast, I show that firms affected by the interest deduction limitation policy experience incrementally higher information asymmetry on TCJA event dates relative to firms that are mostly unaffected by the policy.

Collectively, the evidence agrees with Pastor and Veronesi (2013) that if proposed policies are perceived as heterogeneous relative to existing policies, then investors experience different levels of economic uncertainty for how each proposed policy affects firm profitability. Next, this study answers the call from Brown et al. (2017) for future research on investor sensitivity to uncertainty about the impact of tax policy proposals on firm profitability. Also, the findings in this study generalize to other settings involving regulation change such as the FASB Updates issued to address uncertainty about implementing ASU 2014-09. Finally, this paper should inform regulators, standard-setters, and policymakers. Specifically, my study shows that information asymmetry between investors is a substantial cost of the TCJA created in the development stages of the TCJA bill. Information asymmetry relates to various capital market consequences such as lower stock liquidity and greater corporate tax avoidance (e.g., Verrecchia 2001; Chen and Lin 2017). As such, regulators and standard-setters should consider addressing economic uncertainty during the early stages of legislative development when changing tax policy.

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Appendix A

Variable Definitions
(in alphabetical order)

Variable	Definition
BTM	Book to market ratio, defined as total assets minus total liabilities, divided by the market value of equity.
CAPAT	Capital expenditures in percent of assets, computed as capital expenditures scaled by total assets, and multiplied by 100.
CASHETR	Cash effective tax rate, calculated as income taxes paid deflated by pretax income adjusted for special items, and multiplied by 100.
CFOAT	Operating performance, computed as operating cash flows scaled by average total assets.
CFOSTD	Cash flow volatility, calculated as the standard deviation of operating cash flows scaled by total assets over the trailing five-year window.
CFOVOL	Alternative measure of cash flow volatility, defined as the standard deviation of operating cash flows scaled by total assets over the trailing five-year window, divided by the mean of operating cash flows scaled by total assets over the trailing five years.
FOPROF	Percent profits from foreign activities, computed as pretax foreign income divided by pretax income, and multiplied by 100.
GAAPETR	GAAP effective tax rate, calculated as total income tax expense deflated by pretax income, and multiplied by 100.
HCAP	A median split measure of *CAPAT*, which is set equal to one for firms that are above the median of *CAPAT*, and zero otherwise.
HCETR	A median split measure of *CASHETR*, which is set equal to one for firms that are above the median of *CASHETR*, and zero otherwise.
HFOPR	A median split measure of *FOPROF*, which is set equal to one for firms that are above the median of *FOPROF*, and zero otherwise.
HGETR	A median split measure of *GAAPETR*, which is set equal to one for firms that are above the median of *GAAPETR*, and zero otherwise.
HINT	A median split measure of *INTAT*, which is set equal to one for firms that are above the median of *INTAT*, and zero otherwise.

HOPF	A median split measure of *OPFAT*, which is set equal to one for firms that are above the median of *OPFAT*, and zero otherwise.
IDIOV	Abnormal idiosyncratic volatility, defined as the square root of the ratio of the squared residual on each trading day *d* in year *t* divided by the average squared residual from [-191, -3] trading days from the first TCJA event (i.e., 9/27/2017), and subtracting one. The residual is computed from a firm-specific market model regression that includes three lags of the market return.
INTAT	Interest expenses in percent of assets, calculated as total interest expenses deflated by total assets, and multiplied by 100.
LDTV	Log of dollar trading volume, computed by taking the natural logarithm of one plus the product of daily trading volume multiplied by stock price.
LEV	Financial leverage, defined as the ratio of total debt in current liabilities plus total long term debt, scaled by total assets.
LSP	Log of stock price, calculated by taking the natural logarithm of one plus the daily stock price.
MOMRET	Stock return performance, defined as contemporaneous annual buy-and-hold raw returns over the window [-255, -3] trading days before the first TCJA event (i.e., 9/27/2017).
OPFAT	Foreign operations in percent of assets, computed as the absolute value of pretax foreign income divided by total assets, and multiplied by 100.
SHTURN	Share turnover, calculated as the daily trading volume scaled by the number of shares outstanding.
SIZE	Firm size, defined as the natural logarithm of the market value of equity.
SPREAD_0	Bid-ask spread estimator, computed as in Corwin and Schultz (2012). Any negative spread values are set to zero.
SQRET	Squared returns, calculated as the daily return on day *d* multiplied by the same return on day *d*.
TCJA	Tax Cuts and Jobs Act event windows. Includes six legislative events from Gaertner, Hoopes, and Williams (2020) as follows: (1) unveiling the Unified Framework for Tax Reform; (2) introduction of the TCJA in the House; (3) House passage of the TCJA; (4) Senate passage of the TCJA; (5) report by the joint conference committee; (6) Senate final agreement to the TCJA. The event window around each event is (-1, 1) trading days.

Appendix B

This appendix provides the 17 legislative developments leading up to the enactment of the Tax Cuts and Jobs Act of 2017 (TCJA). Following Gaertner, Hoopes, and Williams (2020), I select the six (of 17) legislative developments that draw the most public attention on Google Trends. The "X" symbol highlights the six legislative developments that I use in the study as event dates.

Order of Events	TCJA Legislative Developments	Event Dates	All Dates
①	The Unified Framework for Tax Reform was unveiled	X	9/27/2017
②	Budget was passed by U.S. House of Representatives (House)		10/5/2017
③	Budget was passed by U.S. Senate (Senate)		10/19/2017
④	The final budget was passed		10/26/2017
⑤	The Tax Cuts and Jobs Act (TCJA) was introduced in the House	X	11/2/2017
⑥	House Ways and Means Committee began to markup the TCJA		11/6/2017
⑦	The TCJA was introduced in the Senate		11/9/2017
⑧	Senate Finance Committee began to markup the TCJA		11/13/2017
⑨	The House passed the TCJA	X	11/16/2017
⑩	The TCJA was cleared by the Senate Budget Committee		11/28/2017
⑪	The Senate passed the TCJA	X	12/2/2017
⑫	The House agreed to enter into a conference committee		12/4/2017
⑬	The Senate agreed to enter into a conference committee		12/6/2017
⑭	The joint conference committee issued a final report of the TCJA	X	12/15/2017
⑮	The House agreed to the final TCJA bill		12/19/2017
⑯	The Senate agreed to the final TCJA bill	X	12/20/2017
⑰	The TCJA was signed into law by President Donald Trump		12/22/2017

Table 1
Sample Selection

Data Requirement	Firm-Days
Initial sample of CRSP daily observations with stock return data from calendar years 2015 to 2018 (Source: Daily CRSP dataset)	7,319,641
Eliminate firms missing stock prices and returns data (Source: Daily CRSP dataset)	(27,902)
Merge with Compustat. Remove firms with negative total assets, negative values for common shares outstanding, closing stock prices below $1, non-positive pre-tax income and all effective tax rates at or above 100% (Source: Compustat)	(4,624,656)
Remove firms that are not exchange-listed U.S. common stocks. Firms must have CRSP share codes 10 or 11, and CRSP exchange codes 1, 2, or 3 to remain in the sample (Source: Daily CRSP dataset)	(675,105)
Restrict sample to firms with stock data in calendar year 2017 only (Source: Daily CRSP dataset)	(1,517,875)
Eliminate firms missing data to compute the bid-ask spread estimator from Corwin and Schultz (2012) (Source: Daily CRSP dataset)	(8,251)
Remove firms missing tax-related variables and control variables (Source: Daily CRSP dataset; Compustat)	(254,452)
Final Sample	**211,400**

Table 2: Descriptive Statistics

This table presents descriptive statistics for calendar year 2017. Any Compustat-based measures such as the tax-related attributes are computed as of fiscal year 2016 (i.e., year *t*-1). Panel A summarizes data on the bid-ask spread measure, TCJA indicator variable, tax-related attribute variables, and control variables related to bid-ask spread. The TCJA indicator variable is not inclusive of all days in calendar year 2017. Specifically, TCJA is set equal to one for [-1, 1] trading days around six legislative events that precede the TCJA's enactment. TCJA is set equal to zero for [-191, -3] trading days before the first event on 9/27/2017, which is the non-event window. I include continuous measures of the tax-related attributes on this table for ease of interpretation. Panel B provides summary data on the abnormal idiosyncratic volatility measure, and control variables associated with idiosyncratic volatility. Panel C reports the sample industry composition using Fama-French 12 classifications. All variable definitions are provided in Appendix A.

Panel A: Bid-Ask Spread Estimator, TCJA, Controls, and Tax-Related Attributes

Variable	N	Mean	Standard Deviation	Lower Quartile	Median	Upper Quartile
SPREAD_0	211,400	0.0058	0.0071	0.0000	0.0036	0.0091
TCJA	169,461	0.0891	0.2848	0.0000	0.0000	0.0000
SQRET	211,400	0.0003	0.0006	0.0000	0.0001	0.0002
LDTV	211,400	16.8359	2.1204	15.6391	17.0572	18.3325
LSP	211,400	3.8798	0.8764	3.3340	3.9323	4.4423
SHTURN	211,400	0.0079	0.0075	0.0036	0.0057	0.0093
CASHETR	211,400	22.5473	13.7621	13.0294	21.5639	30.4480
GAAPETR	211,400	27.6817	13.5414	20.7624	29.2484	34.8988
CAPAT	211,400	3.4861	2.9992	1.3909	2.5854	4.8185
INTAT	211,400	1.1982	1.0714	0.4010	0.9788	1.6323
FOPROF	211,400	39.3179	35.1376	7.0582	29.3219	68.0662
OPFAT	211,400	3.4300	3.7971	0.6689	2.0856	5.0489

Panel B: Abnormal Idiosyncratic Volatility and Controls

Variable	N	Mean	Standard Deviation	Lower Quartile	Median	Upper Quartile
IDIOV	211,400	-0.3383	0.6193	-0.7772	-0.5099	-0.1036
CFOAT	211,400	0.1131	0.0615	0.0739	0.1053	0.1439
CFOSTD	211,400	0.0300	0.0232	0.0143	0.0235	0.0393
CFOVOL	211,400	0.3367	0.4253	0.1393	0.2300	0.3745
BTM	211,400	0.4076	0.3549	0.1935	0.3402	0.5349
SIZE	211,400	8.1433	1.7593	6.9878	8.0725	9.2706
LEV	211,400	0.2754	0.1948	0.1334	0.2546	0.3856
MOMRET	211,400	0.2080	0.3171	0.0146	0.1885	0.3702

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Table 2 (continued)

Panel C: Sample Distribution by Industry Group

Industry	**# of Observations**	**Percent**
Business Equipment	44,708	21.15%
Manufacturing	36,079	17.07%
Other	29,073	13.75%
Wholesale and Retail	23,249	11.00%
Finance	17,480	8.27%
Healthcare	16,788	7.94%
Consumer Nondurables	15,053	7.12%
Chemicals	12,254	5.80%
Consumer Durables	9,750	4.61%
Telecom	4,728	2.24%
Energy	1,987	0.94%
Utilities	251	0.12%
Total	**211,400**	**100%**

Table 3: Pearson Correlation Coefficients

This table presents Pearson correlations for calendar year 2017. Any Compustat-based measures such as the tax-related attributes are computed as of fiscal year 2016 (i.e., year *t*-1). Panel A provides correlations between variables that are used in ordinary least squares (OLS) regression equations with bid-ask spread (*SPREAD_0*) as the dependent variable. Panel B presents correlations between variables that are used in OLS regression equations with abnormal idiosyncratic volatility (*IDIOV*) as the dependent variable. All variable definitions are provided in Appendix A.

***, **, * Denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

Panel A: Correlations for Bid-Ask Spread Equation

	SPREAD_0	*TCJA*	*HCETR*	*HGETR*	*HCAP*	*HINT*	*HFOPR*	*HOPF*	*SQRET*	*LDTV*	*LSP*	*SHTURN*
SPREAD_0	1.00											
TCJA	0.03***	1.00										
HCETR	-0.01***	0.00	1.00									
HGETR	0.02***	0.00	0.30***	1.00								
HCAP	0.03***	-0.00	0.01***	0.09***	1.00							
HINT	-0.01***	-0.00	-0.09***	0.03***	0.12***	1.00						
HFOPR	-0.02***	-0.00	-0.18***	-0.45***	-0.07***	-0.01***	1.00					
HOPF	-0.04***	-0.00	-0.04***	-0.31***	-0.01***	-0.05***	0.65***	1.00				
SQRET	0.05***	0.03***	-0.02***	0.01***	0.05***	0.00	-0.02***	-0.04***	1.00			
LDTV	-0.22***	0.03***	-0.09***	-0.14***	0.00**	0.13***	0.10***	0.11***	-0.06***	1.00		
LSP	-0.21***	0.02***	0.00	-0.07***	-0.02***	-0.01***	0.06***	0.14***	-0.17***	0.60***	1.00	
SHTURN	0.05***	0.05***	-0.07***	0.00	0.11***	0.10***	-0.02***	-0.06***	0.40***	0.35***	-0.05***	1.00

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Table 3 (continued)

Panel B: Correlations for Abnormal Idiosyncratic Volatility Equation

	IDIOV	*TCJA*	*HCETR*	*HGETR*	*HCAP*	*HINT*	*HFOPR*	*HOPF*
IDIOV	1.00							
TCJA	0.05***	1.00						
HCETR	-0.00**	0.00	1.00					
HGETR	-0.01**	0.00	0.30***	1.00				
HCAP	0.01***	-0.00	0.01***	0.09***	1.00			
HINT	0.01***	-0.00	-0.09***	0.03***	0.12***	1.00		
HFOPR	-0.00	-0.00	-0.18***	-0.45***	-0.07***	-0.01***	1.00	
HOPF	-0.00	-0.00	-0.04***	-0.31***	-0.01***	-0.05***	0.65***	1.00
CFOSTD	-0.01***	0.00	0.03***	0.06***	0.03***	-0.09***	-0.03***	0.06***
CFOVOL	0.00	0.00	-0.05***	0.01***	-0.06***	-0.07***	0.02***	-0.07***
CFOAT	-0.01***	-0.00	0.06***	0.05***	0.26***	-0.06***	-0.08***	0.20***
MOMRET	0.00	-0.00	-0.09***	-0.07***	-0.05***	-0.03***	0.06***	0.03***
SIZE	0.01***	0.00	-0.06***	-0.14***	-0.03***	0.09***	0.11***	0.14***
BTM	0.01***	-0.00	-0.07***	0.01***	-0.07***	-0.10***	-0.05***	-0.23***
LEV	0.01***	-0.00	-0.12***	0.02***	0.11***	0.67***	0.03***	0.00

Panel B (continued)

	CFOSTD	*CFOVOL*	*CFOAT*	*MOMRET*	*SIZE*	*BTM*	*LEV*
CFOSTD	1.00						
CFOVOL	0.45***	1.00					
CFOAT	0.19***	-0.29***	1.00				
MOMRET	-0.04***	-0.00	-0.01***	1.00			
SIZE	-0.27***	-0.27***	0.16***	-0.03***	1.00		
BTM	0.05***	0.29***	-0.42***	-0.01***	-0.39***	1.00	
LEV	-0.09***	-0.08***	-0.02***	-0.01***	0.21***	-0.26***	1.00

Table 4

This table presents OLS regressions of the association between information asymmetry and uncertainty about the TCJA. Columns (1) and (3) are univariate OLS regressions of *SPREAD_0* or *IDIOV* on the *TCJA* indicator variable, respectively. Columns (2) and (4) are OLS regressions of *SPREAD_0* or *IDIOV* on the *TCJA* indicator variable and control variables, respectively. All regressions include industry fixed effects. The standard errors are clustered at the firm level. t-statistics are reported in parentheses. All variable definitions are provided in Appendix A.

***, **, * Denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

	Dep. Var.: *SPREAD_0*			Dep. Var.: *IDIOV*	
	(1)	(2)		(3)	(4)
INTERCEPT	0.0059***	0.0193***	*INTERCEPT*	-0.3511***	-0.3882***
	(27.87)	(35.26)		(-44.88)	(-17.73)
TCJA	0.0009***	0.0009***	*TCJA*	0.1004***	0.1004***
	(11.78)	(12.89)		(13.74)	(13.74)
SQRET		-0.3693***	*CFOSTD*		-0.1612
		(-5.84)			(-1.13)
LDTV		-0.0007***	*CFOAT*		0.0283
		(-18.60)			(0.48)
LSP		-0.0007***	*MOMRET*		0.0123
		(-8.02)			(1.06)
SHTURN		0.1143***	*SIZE*		0.0021
		(13.43)			(1.12)
			BTM		0.0309***
					(2.93)
			LEV		0.0165
					(1.01)
Industry FE	Yes	Yes	**Industry FE**	Yes	Yes
Adj R-Sq.	0.004	0.070	**Adj R-Sq.**	0.003	0.003
Observations	169,461	169,461	**Observations**	169,461	169,461

Table 5

This table presents univariate OLS regressions of the association between information asymmetry and uncertainty about TCJA policies captured by firms' tax-related attributes (FTA). Panel A includes univariate OLS regressions of *SPREAD_0* on the *TCJA* indicator variable, *FTA* measure, and interaction term of *TCJA* with *FTA*. Panel B includes univariate OLS regressions of *IDIOV* on the *TCJA* indicator variable, *FTA* measure, and interaction term of *TCJA* and *FTA*. The variable of interest is the interaction term. *FTA* represents one of six tax-related attributes that are allocated in separate columns as individual regressions: *HCETR*, *HGETR*, *HCAP*, *HINT*, *HFOPR*, and *HOPF*. All variable definitions are provided in Appendix A. All regressions include industry fixed effects. The standard errors are clustered at the firm level. t-statistics are reported in parentheses.

***, **, * Denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

	Table 5, Panel A: Dependent Variable: *SPREAD_0*					
	FTA Variables					
	(*HCETR*)	(*HGETR*)	(*HCAP*)	(*HINT*)	(*HFOPR*)	(*HOPF*)
INTERCEPT	0.0061***	0.0057***	0.0057***	0.0061***	0.0060***	0.0061***
	(26.68)	(23.71)	(25.56)	(25.34)	(27.26)	(27.93)
TCJA	0.0008***	0.0009***	0.0010***	0.0007***	0.0009***	0.0009***
	(8.19)	(9.34)	(10.46)	(6.87)	(8.45)	(7.95)
FTA	-0.0002	0.0003*	0.0004***	-0.0003*	-0.0003	-0.0007***
	(-1.36)	(1.80)	(2.68)	(-1.81)	(-1.58)	(-3.84)
*FTA*TCJA*	0.0001	-0.0001	-0.0003**	0.0003*	-0.0002	-0.0001
	(0.48)	(-0.95)	(-2.05)	(1.73)	(-1.07)	(-0.46)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R-Sq.	0.004	0.004	0.004	0.004	0.004	0.006
Observations	169,461	169,461	169,461	169,461	169,461	169,461

	Table 5, Panel B: Dependent Variable: *IDIOV*					
	FTA Variables					
	(*HCETR*)	(*HGETR*)	(*HCAP*)	(*HINT*)	(*HFOPR*)	(*HOPF*)
INTERCEPT	-0.3464***	-0.3471***	-0.3572***	-0.3524***	-0.3530***	-0.3524***
	(-41.75)	(-39.58)	(-41.70)	(-40.33)	(-43.21)	(-44.32)
TCJA	0.0990***	0.1153***	0.1173***	0.0852***	0.1068***	0.0993***
	(9.65)	(11.07)	(10.84)	(8.40)	(9.85)	(9.09)
FTA	-0.0085	-0.0050	0.0107*	0.0017	0.0049	0.0043
	(-1.53)	(-0.84)	(1.82)	(0.27)	(0.84)	(0.72)
*FTA*TCJA*	0.0029	-0.0298**	-0.0340**	0.0303**	-0.0128	0.0022
	(0.20)	(-2.04)	(-2.34)	(2.08)	(-0.88)	(0.15)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R-Sq.	0.003	0.003	0.003	0.003	0.003	0.003
Observations	169,461	169,461	169,461	169,461	169,461	169,461

Table 6

This table presents OLS regressions of the association between information asymmetry and uncertainty about TCJA policies captured by firms' tax-related attributes (FTA). Panel A includes OLS regressions of *SPREAD_0* on the *TCJA* indicator variable, *FTA* measure, interaction term of *TCJA* with *FTA*, and control variables. Panel B includes OLS regressions of *IDIOV* on the *TCJA* indicator variable, *FTA* measure, interaction term of *TCJA* and *FTA*, and control variables. The variable of interest is the interaction term of *TCJA* with *FTA*. *FTA* represents one of six tax-related attributes that are allocated in separate columns as individual regressions: *HCETR*, *HGETR*, *HCAP*, *HINT*, *HFOPR*, and *HOPF*. All variable definitions are provided in Appendix A. All regressions include industry fixed effects. The standard errors are clustered at the firm level. t-statistics are reported in parentheses.

***, **, * Denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, based on two-tailed tests.

	Table 6, Panel A: Dependent Variable: *SPREAD_0*					
	FTA Variables					
	(*HCETR*)	(*HGETR*)	(*HCAP*)	(*HINT*)	(*HFOPR*)	(*HOPF*)
INTERCEPT	0.0197***	0.0199***	0.0183***	0.0182***	0.0187***	0.0188***
	(28.14)	(28.25)	(23.84)	(25.74)	(22.82)	(23.30)
TCJA	0.0009***	0.0010***	0.0011***	0.0008***	0.0010***	0.0010***
	(8.82)	(10.06)	(11.64)	(7.54)	(8.90)	(8.52)
FTA	-0.0006	-0.0010	0.0021**	0.0030***	0.0014	0.0010
	(-0.60)	(-0.92)	(1.97)	(2.91)	(1.30)	(0.94)
*FTA*TCJA*	0.0001	-0.0001	-0.0003**	0.0003*	-0.0001	-0.0000
	(0.60)	(-0.94)	(-2.18)	(1.79)	(-0.65)	(-0.21)
SQRET	-0.4271***	-0.4600***	-0.3505***	-0.3462***	-0.3486***	-0.3435***
	(-4.89)	(-4.94)	(-3.81)	(-3.76)	(-4.09)	(-4.24)
*SQRET*FTA*	0.1204	0.1722	-0.0298	-0.0610	-0.0385	-0.0534
	(0.96)	(1.38)	(-0.24)	(-0.48)	(-0.30)	(-0.41)
LDTV	-0.0007***	-0.0008***	-0.0006***	-0.0006***	-0.0006***	-0.0006***
	(-14.47)	(-15.08)	(-13.20)	(-12.22)	(-10.25)	(-10.98)
*LDTV*FTA*	0.0001	0.0001*	-0.0001	-0.0002**	-0.0001	-0.0002**
	(0.71)	(1.67)	(-1.56)	(-2.10)	(-1.37)	(-2.06)
LSP	-0.0007***	-0.0006***	-0.0007***	-0.0007***	-0.0008***	-0.0009***
	(-5.66)	(-4.95)	(-7.11)	(-4.39)	(-5.19)	(-7.82)
*LSP*FTA*	-0.0001	-0.0003	0.0000	-0.0001	0.0001	0.0004**
	(-0.77)	(-1.48)	(0.05)	(-0.68)	(0.63)	(1.98)
SHTURN	0.1171***	0.1320***	0.0971***	0.1121***	0.1086***	0.1022***
	(9.44)	(10.71)	(9.61)	(8.15)	(10.08)	(9.96)
*SHTURN*FTA*	-0.0084	-0.0362**	0.0240	0.0055	0.0106	0.0223
	(-0.51)	(-2.28)	(1.57)	(0.32)	(0.63)	(1.30)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R-Sq.	0.070	0.070	0.071	0.071	0.070	0.070
Observations	169,461	169,461	169,461	169,461	169,461	169,461

(Continued on the next page)

Table 6 (continued)

	Table 6, Panel B: Dependent Variable: *IDIOV*					
	FTA Variables					
	(*HCETR*)	(*HGETR*)	(*HCAP*)	(*HINT*)	(*HFOPR*)	(*HOPF*)
INTERCEPT	-0.3877***	-0.3904***	-0.3911***	-0.3857***	-0.3901***	-0.4261***
	(-13.31)	(-13.21)	(-12.39)	(-14.64)	(-13.21)	(-13.09)
TCJA	0.0990***	0.1154***	0.1173***	0.0852***	0.1068***	0.0993***
	(9.66)	(11.08)	(10.83)	(8.40)	(9.85)	(9.09)
FTA	-0.0043	0.0116	0.0101	-0.0002	0.0028	0.0786*
	(-0.11)	(0.28)	(0.25)	(-0.00)	(0.07)	(1.81)
*FTA*TCJA*	0.0027	-0.0299**	-0.0340**	0.0304**	-0.0128	0.0023
	(0.19)	(-2.05)	(-2.33)	(2.09)	(-0.87)	(0.16)
CFOSTD	-0.3056	-0.3083	-0.1652	-0.2764	-0.4359**	-0.2734
	(-1.53)	(-1.48)	(-0.75)	(-1.47)	(-2.37)	(-1.26)
*CFOSTD*FTA*	0.2595	0.2597	0.0339	0.2727	0.5153*	0.1980
	(0.90)	(0.91)	(0.12)	(1.00)	(1.87)	(0.69)
CFOAT	0.0991	0.0960	-0.0369	0.0245	0.1033	0.1123
	(1.18)	(1.19)	(-0.39)	(0.33)	(1.38)	(1.38)
*CFOAT*FTA*	-0.1179	-0.1080	0.0885	0.0315	-0.1255	-0.1595
	(-1.05)	(-0.92)	(0.73)	(0.28)	(-1.08)	(-1.37)
MOMRET	0.0003	0.0131	0.0092	0.0259*	0.0150	0.0101
	(0.02)	(0.84)	(0.49)	(1.68)	(0.95)	(0.64)
*MOMRET*FTA*	0.0236	-0.0025	0.0073	-0.0271	-0.0041	0.0066
	(1.06)	(-0.11)	(0.32)	(-1.21)	(-0.18)	(0.29)
SIZE	0.0021	0.0019	0.0025	0.0022	0.0019	0.0053*
	(0.86)	(0.75)	(0.90)	(0.95)	(0.71)	(1.88)
*SIZE*FTA*	0.0004	-0.0005	-0.0011	0.0001	0.0005	-0.0058
	(0.10)	(-0.14)	(-0.29)	(0.04)	(0.13)	(-1.49)
BTM	0.0234*	0.0294*	0.0324**	0.0373***	0.0383***	0.0477***
	(1.67)	(1.95)	(2.16)	(2.76)	(3.25)	(3.81)
*BTM*FTA*	0.0181	0.0028	-0.0054	-0.0115	-0.0149	-0.0402
	(0.94)	(0.14)	(-0.26)	(-0.63)	(-0.68)	(-1.64)
LEV	0.0345*	0.0327	0.0163		0.0082	0.0083
	(1.67)	(1.34)	(0.64)		(0.40)	(0.41)
*LEV*FTA*	-0.0397	-0.0260	-0.0012		0.0108	0.0064
	(-1.27)	(-0.82)	(-0.04)		(0.33)	(0.19)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj R-Sq.	0.003	0.003	0.003	0.003	0.003	0.003
Observations	169,461	169,461	169,461	169,461	169,461	169,461