

# ADVANCES IN TAXATION

# ADVANCES IN TAXATION

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ADVANCES IN TAXATION VOLUME 25

# ADVANCES IN TAXATION

EDITED BY

**JOHN HASSELDINE**

*University of New Hampshire, USA*



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## ABOUT THE EDITOR

Since 2011, Dr John Hasseldine has been Professor of Accounting and Taxation in the Peter T. Paul College of Business and Economics at the University of New Hampshire. Previously, he was Chair and Head of the Accounting and Finance Department at the University of Nottingham Business School. John, a Kiwi, qualified as a chartered accountant in New Zealand and is a Fellow of the Association of Chartered Certified Accountants (FCCA) based in London.

John has served on three government committees in the UK and was a contributor to the Mirrlees Review of the UK tax system conducted by the Institute of Fiscal Studies. He has been an external expert at the International Monetary Fund, a visiting professor at the University of New South Wales, Sydney, and a keynote speaker at several international tax conferences. He travels widely, speaking at national and global conferences, including one on VAT organized by the OECD, World Bank and IMF, and a conference on dealing with the national tax gap held at the U.S. Library of Congress in Washington DC. He is a co-author of *Comparative Taxation: Why Tax Systems Differ*, Fiscal Publications, 2017.

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# INTRODUCTION

## TAX AVOIDANCE, TAX POLICY, TAX ADMINISTRATION, AND TAX COMPLIANCE

Together with acknowledging the members of the editorial board, I should like to expressly thank the ad hoc expert reviewers listed below for their valuable and timely reviewing activity during 2017–2018.

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In Volume 25, there are eight chapters that span issues in tax avoidance, tax policy, tax administration, and tax compliance. In the lead chapter, Savannah Guo, Sabrina Chi, and Kirsten Cook examine short selling as one external determinant of corporate tax avoidance. Tax-avoidance activities may convey a signal of bad news. They predict that, when short-interest levels are high, managers have incentives to reduce firm tax avoidance in order to reduce the associated stock price crash risk. Consistent with their prediction, they find that short interest is negatively associated with subsequent tax-avoidance levels and this effect is incremental to other factors identified by prior research. They conclude that short selling significantly constrains corporate tax avoidance.

The second chapter in this volume examines FIN48 on earnings management activity, by focusing on changes in the deferred tax asset valuation allowance (DTVA). Bauman and Bowler employ a sample of publicly traded US firms over the period of 2003–2010. A regression model and an analysis of the frequency of DTVA-based earnings management reveal no evidence of a systematic change in behavior attributable to FIN48. However, further analysis shows that firms identified as managing earnings to meet analyst forecasts increasingly used discretionary DTVA changes relative to changes in tax cushion in the post-FIN48 period.

In the third chapter, Billings, Lee, and Lee study whether the lowering of dividend taxes as part of the US Jobs and Growth Tax Relief Reconciliation Act of 2003 (JGTRRA) resulted in an increase in dividend payouts at the expense of R&D spending. They find that R&D investments responded negatively to higher levels of dividend payout in the post-JGTRRA tax regime compared with the pre-regime. They also find that R&D intensity and financial constraint moderate this negative relation with the relation only holding for firms in low R&D-intensity industries and firms facing high levels of financial constraint. The implication for tax policy is that even though the tax cut on dividend receipts has the benefit of lowering the cost of equity capital, the benefit appears to have come at the expense of R&D investment.

The fourth chapter by Dowis and Englebrecht examines reasonable compensation in closely held corporations and the impact of gender, political affiliation, and family make-up on decisions made in the US Tax Court. With a time frame of judicial decisions spanning 1983 through 2014, they analyze the effect of gender, political affiliation, and family composition on US Tax Court decisions in reasonable compensation cases. They find that the judge's gender and tenure/experience are significant variables in the analyses. Their results also suggest a relationship between the duration of the case and the judge's decision.

A practice-related chapter by Pippin, Wong, and Mason reports on a survey of Americans living abroad on the impact of tax rules explicitly designed for these individuals. The authors analyze how individuals are affected by foreign tax reporting laws and how they perceive and evaluate the rules' consequences. A common belief is that many of the foreign reporting provisions were enacted in order to eliminate or reduce tax evasion. The results indicate that Americans living abroad experience the Foreign Account Tax Compliance Act (FATCA) as negatively impacting their lives.

The next three chapters in this volume all have an international focus. Akhand investigates the effects of the corporate sector on the effectiveness of selected tax compliance instruments in the context of large Bangladesh corporate taxpayers. He finds that their filing compliance is influenced by penalty, tax audit, and taxpayer services, while reporting compliance is influenced by tax audit, criminal prosecution, and tax simplification. He concludes that the effectiveness of tax compliance instruments, among other things, largely depends on the sector affiliation of corporate taxpayers.

Next, Chong and Arunachalam examine the determinants of enforced tax compliance behavior of Malaysian citizens with trust in the tax agency assumed

to be a mediating variable. They find that trust in government, trust in the tax administrator, and the power of the Inland Revenue Board of Malaysia all influenced enforced compliance. However, tax morale and tax amoral behaviors did not influence enforced compliance.

In the last chapter of the volume, Bitzenis and Vasileios investigate the effect of the economic downturn in Greece on the factors determining the level of tax morale through primary data from a European Union-funded research project on the Greek shadow economy. Their findings provide input to the policy discussions on transferring activities from the shadow to the official economy, a goal which is part of Europe 2020 strategy.

**John Hasseldine**  
**Editor, *Advances in Taxation***

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# SHORT SELLING AND CORPORATE TAX AVOIDANCE

Savannah (Yuanyuan) Guo, Sabrina Chi  
and Kirsten A. Cook

## ABSTRACT

*This study examines short selling as one external determinant of corporate tax avoidance. Prior research suggests that short sellers have information advantages over retail investors, and high short-interest levels are a bearish signal of targeted stock prices. As a result, when short-interest levels are high, managers have been shown to take actions to minimize the negative effect of high short interest on firms' stock prices. Tax-avoidance activities may convey a signal of bad news (i.e., high stock price crash risk). We predict that, when short-interest levels are high, managers possess incentives to reduce firm tax avoidance in order to reduce the associated stock price crash risk. Consistent with this prediction, we find that short interest is negatively associated with subsequent tax-avoidance levels. This effect is incremental to other factors identified by prior research. We conclude that short selling significantly constrains corporate tax avoidance.*

**Keywords:** Short selling; tax avoidance; stock price crash risk; effective tax rates; book-tax differences; tax shelters

## INTRODUCTION

A popular research stream in the tax accounting literature focuses on corporate tax avoidance. One area that draws a widespread interest is the determinants of corporate tax avoidance, especially after Shackelford and Shevlin (2001) expressed a demand for more research in understanding the cross-sectional differences in firms' willingness to avoid taxes. The extant literature has studied

mostly *internal* determinants of corporate tax avoidance, such as how firms with various characteristics, tax-planning opportunities, and managerial incentives are able to avoid more taxes.<sup>1</sup> Each of these previously examined determinants encourages managers and their firms to engage in more tax-avoidance activities. In this chapter, we investigate whether firms attempt to respond to one *external* factor, short selling, by strategically *reducing* their tax-avoidance activities.

Compared to taking a long position in a security, short selling is more risky and costly, as short sellers trade on securities they do not directly own. Therefore, short sellers will not execute a transaction unless they expect that security's price to fall by a sufficient amount to compensate for the costs and risks of shorting (Diamond & Verrecchia, 1987). Prior literature suggests that short sellers hold an information advantage over retail investors and even analysts (Drake, Rees, & Swanson, 2011; Khan & Lu, 2013). When short sellers concentrate to bet on a specific security's price decline, this high short-interest level signals to the market that the targeted stock is overvalued relative to its fundamentals, and the stock price is likely to decrease (i.e., greater stock price crash risk). In fear of this negative signal that high short interest can send to firms' existing and prospective investors, prior research finds that managers respond to high short interest by decreasing discretionary accruals (and the likelihood of marginally beating earnings targets) and adjusting their disclosure policy to reduce bad news forecasts (Fang, Huang, & Karpoff, 2015; Li & Zhang, 2015).

To avoid the chance of questionable tax positions being detected, scrutinized, and overturned by taxing authorities, tax-avoidance activities often have complex structures. These complex structures correspondingly increase the complexity of financial reporting and often signal hidden bad news. For example, Enron used tax-shelter arrangements to manipulate earnings while preventing investors from understanding the source of the fabricated revenue (JCT, 2003). As bad news associated with misleading tax-avoidance activities accumulates, firms' stock price crash risk significantly increases (Kim, Li, & Zhang, 2011). This risk is exacerbated when a firm experiences high short interest, a period when a large number of sophisticated investors trade on a firm's anticipated stock price declines by shorting the firm's shares for a profit. Because managers closely monitor their firms' market prices and face strong incentives to stave off stock price crashes (Bergstresser & Philippon, 2006; Burgstahler & Dichev, 1997), we argue that, when short-interest levels are high and the stock price is more sensitive to firm-specific bad news, it is reasonable to expect firm managers to constrain negative-signal hoarding activities, such as tax-avoidance activities (Grullon, Michenaud, & Weston, 2015).

To measure tax avoidance, we use a variety of proxies calculated from financial statement data. Specifically, we use four proxies following prior literature: cash and GAAP effective tax rates (ETRs), discretionary permanent book-tax differences, and tax-shelter scores (Frank, Lynch, & Rego, 2009; Gallemore & Labro, 2015; Wilson, 2009). To measure short interest, we use open short-interest positions reported eight and a half months before the current fiscal year-end (i.e., three and a half months after the previous fiscal year-end) so that short sellers may digest

the financial statements from the previous fiscal year before taking (or not taking) short positions in firms' securities.<sup>2</sup>

Consistent with our hypothesis that short-selling curbs tax avoidance, we find that high short interest observed during the fourth month after the previous fiscal year-end is positively associated with subsequent cash and GAAP ETRs (i.e., less tax avoidance). Further, as predicted, we find strong negative associations between short-interest levels and our two more egregious tax-avoidance proxies – discretionary permanent book-tax differences and tax-shelter scores – indicating that short selling has a strong constraining effect on more aggressive tax-avoidance activities.

We perform several additional analyses and robustness tests. First, we use two-stage least squares (2SLS) estimation to address endogeneity concerns and bolster the causal inferences that we draw from our results. Specifically, in our first-stage model, we use the industry-year mean level of short interest as our instrumental variable (IV) to predict firm-specific short interest. We verify that this variable is not a weak instrument. Then, in our second-stage model, we replace actual short-interest levels with the predicted values from our first-stage model and find consistent results for three of four tax-avoidance outcome variables.

Second, we partition our sample into low, middle, and high analyst coverage subsamples. As prior literature suggests that firms with less analyst following are more likely to experience a stock price crash risk related to tax avoidance, we expect managers of these firms to face greater incentives to reduce tax avoidance under the scrutiny of short sellers. However, contrary to our expectation, we find that results are more pronounced in firms with *more* analyst coverage (i.e., the high analyst coverage tercile). One possible explanation is that managers of firms with more analyst coverage tend to be more accountable to external investors and thus focus more on stock market conditions. These managers are, therefore, more likely to be aware of high short-interest levels and consequently more likely to rein in tax-avoidance activities following increases in short interest.

Third, we examine three alternative specifications of our short-interest variable: (1) measuring short interest in the middle of the fifth month after the previous fiscal year-end, (2) varying the timing of the measurement of short interest with each firm's filer status (i.e., large accelerated filers, accelerated filers, and nonaccelerated filers), and (3) measuring short interest as a 12-month average. Our results are qualitatively similar under these alternative specifications.

Fourth, it is possible that managers respond to short interest by providing more information related to existing tax positions in their firms' disclosures. We address this possibility by controlling for transparency related to tax avoidance. Our main results are robust to including this control.

This study demonstrates how managers strategically react to high short interest by subsequently constraining tax avoidance. There is a long stream of research within the larger tax-avoidance literature examining whether tax avoidance is "good" or "bad" (i.e., do managers engage in tax avoidance to enhance firm value or to extract rents?). We contribute to this research stream by demonstrating that managers rein in tax avoidance in response to short-selling pressure. Specifically, our study complements Kim et al. (2011), who demonstrate

that stock price crash risk is positively associated with tax avoidance. Our results indicate that managers view tax avoidance as one dial they may turn to alleviate the concentrated short-selling attention their firms experience. Our study also builds on and supports Hoopes, Mescall, and Pittman (2012), who demonstrate that managers are able to “undo” most tax-avoidance activities in a relatively short time (less than a year). The implication for managers is that, regardless of whether tax avoidance truly is “good” or “bad,” reducing tax avoidance is (1) doable in a short window and (2) may alleviate the short-selling pressure their firms are experiencing.

We also contribute to the literature on short selling by showing that short selling has a constraining effect on corporate tax avoidance. This finding is complementary and incremental to other monitoring effects of short selling demonstrated by prior studies, such as detecting financial misconduct and preventing earnings management (Fang et al., 2015; Li & Zhang, 2015).

Finally, we add to the large body of research that studies the determinants of tax avoidance. While much of the work in the related literature is dedicated to identifying tax-avoidance determinants that are *internal* to the firm and encourage *more* tax avoidance, only a few articles examine *external* factors such as the tax authority monitoring and reputation costs that encourage *less* tax avoidance. We provide evidence of the existence of another external determinant of tax avoidance — short selling — by showing that managers reduce firm tax-avoidance activities when short-interest levels are high.

The remainder of the chapter is organized as follows. The section following discusses the related literature and develops our hypothesis. The next section thereafter describes variable definitions, data sources, and empirical models. The section thereafter presents primary results that test the association between short selling and tax avoidance. This section also presents additional analyses and robustness tests. Finally, the last section concludes.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### *Determinants of Corporate Tax Avoidance*

Although government tax authorities such as the Internal Revenue Service (IRS) impose corporate income taxes on all profitable firms at specified statutory rates, firm managers maintain a considerable amount of discretion over the tax-planning strategies they choose to undertake and the associated tax-avoidance outcomes. Dyreng, Hanlon, and Maydew (2008) provide empirical evidence to support the argument that firms can strategically avoid taxes over the long run and keep long-term cash ETRs (i.e., the ratio of cash taxes paid to pretax income) at a level that is significantly lower than the statutory tax rate. In fact, many studies in accounting and finance identify factors that determine corporate tax-avoidance outcomes (e.g., Dyreng, Hanlon, & Maydew, 2010). Much of the literature points to determinants that are embedded in firm characteristics, tax-planning opportunities, and managerial incentives. These determinants are often

internal and encourage more tax avoidance (i.e., lower ETRs, larger book-tax differences, and a greater likelihood of tax-shelter participation). For example, firms that have larger capital expenditures, more extensive foreign operations, subsidiaries located in tax havens, more aggressive financial reporting, and more tax services provided by their external auditors with tax-specific industry expertise have lower tax liabilities (Frank et al., 2009; Gupta & Newberry, 1997; Klassen & Laplante, 2012; Lisowsky, 2010; McGuire, Omer, & Wang, 2012; Rego, 2003; Wilson, 2009). When a firm is managed by a CEO who has high stock option convexity or after-tax compensation incentives, or when a firm's tax department is evaluated as a profit center as opposed to a cost center, the firm's managers also are incentivized to avoid more taxes (Gaertner, 2014; Rego & Wilson, 2012; Robinson, Sikes, & Weaver, 2010).

Prior literature provides limited evidence on external factors that influence firm tax avoidance; these factors normally play a constraining role in determining corporate tax avoidance. For example, Hoopes et al. (2012) show that firms undertake fewer aggressive tax positions when there is stricter monitoring and tax enforcement from the IRS. Prior research also suggests that reputational costs prevent egregious tax avoidance (Graham, Hanlon, Shevlin, & Shroff, 2013). Hanlon and Slemrod (2009) find a negative stock market reaction when the media exposes a firm engaging in tax shelters, indicating that firms suffer a reputational cost when they are "caught" engaging in these activities. Chen, Chen, Cheng, and Shevlin (2010) also provide evidence of this reputational cost argument, demonstrating that firms owned/managed by founding family members engage in less tax avoidance than nonfamily firms, presumably because family firms are more sensitive to reputational and litigation costs associated with aggressive tax avoidance. On the other hand, Gallemore, Maydew, and Thornock (2014) suggest that firms do not bear reputational costs of tax avoidance in terms of executive or auditor turnover, sales growth or advertising expenses, or the likelihood of making the *Fortune* magazine list for "most admired companies." Overall, the extant literature provides limited evidence on external factors that influence firm tax avoidance. In this chapter, we contribute by introducing an external element that may have an inhibiting effect on tax avoidance: short selling.

### *Short Selling*

According to the Securities and Exchange Commission's (SEC) definition, short sellers are traders who borrow a security – usually from institutional owners, brokerages, or broker-dealers – and sell it with the intention of buying the security back at a later date to return to its owner.<sup>3</sup> Unlike retail investors who take long positions in corporate securities in anticipation of stock price increases, short sellers undertake transactions with the belief that the stock price will decrease in the future, enabling them to profit from overpriced stocks. Because of a significant amount of costs associated with the short positions (i.e., collateral, borrowing costs, rebate rates, and so on), only informed short sellers who have strong beliefs concerning the downward price prediction will choose to sell a certain security short (Diamond & Verrecchia, 1987). Therefore, short sellers

are not merely noise traders. Mounting evidence supports the notion that short sellers have information advantages over retail investors, and their short positions convey bearish information about the targeted security (Chi, Pincus, & Teoh, 2014; Christophe, Ferri, & Angel, 2004; Desai, Ramesh, Thiagarajan, & Balachandran, 2002; Kecskés, Mansi, & Zhang, 2012; Pownall & Simko, 2005; Senchack and Starke, 1993).

Short sellers benefit the market and play a crucial role in enhancing market efficiency through improving the extent to which current stock prices reflect information about future earnings (Drake, Myers, Myers, & Stuart, 2015).<sup>4</sup> Dechow, Hutton, Meulbroek, and Sloan (2001) find that short sellers are able to use information contained in fundamental ratios such as earnings and book values to take positions in stocks with lower expected future returns. Drake et al. (2011) find that short sellers' ability to predict future returns surpasses analyst recommendations.<sup>5</sup> Therefore, short sellers' trading behavior conveys external benefits to other investors and promotes price efficiency.

More recent articles demonstrate that short sellers have the ability to detect financial misconduct and earnings restatements as early as 19 months in advance of subsequent public unwinding of such firm incidents (Desai, Krishnamurthy, & Venkataraman, 2006; Karpoff & Lou, 2010; Massa, Zhang, & Zhang, 2015). High short interest is also linked to high audit risk, in which case, the clients' financial statements contain material misstatement while auditors issue unqualified opinions (Cassell, Drake, & Rasmussen, 2011). As a result of these factors, high short interest serves as a red flag of firms' financial reporting opacity and lack of integrity, which could lead to abrupt declines in stock price (Kim & Zhang, 2014; Kim & Zhang, 2016).

### *Hypothesis Development*

Existing literature indicates that managers will strategically react to aggregate market conditions to maintain optimistic earnings valuations (Bergman & Roychowdhury, 2008; Brown, Christensen, Elliott, & Mergenthaler, 2012). Because high short-interest levels send strong risky signals to the market, managers of scrutinized firms may respond to intensely pessimistic short-interest levels in order to prevent their firms' stock prices from crashing. More specifically, managers may behave in a manner to halt or even reverse the negative effect of high short interest and send positive future performance signals to the market. Relevant research provides support for this argument. For example, Fang et al. (2015) and Li and Zhang (2015) study managerial response to short-selling pressure introduced by an SEC regulation.<sup>6</sup> Fang et al. (2015) find that firms facing reduced cost of short selling (and thus increased short-interest levels) significantly reduce their discretionary accruals and likelihood of marginally beating earnings targets, suggesting that short-selling curbs earnings management via discretionary accruals. Li and Zhang (2015) find that managers respond to increased short interest and consequent stock price sensitivity to bad news by reducing the precision and the readability of voluntary disclosures of bad news

forecasts. The authors interpret the result as managers strategically minimizing the adverse effect of high short interest on share price.

Because tax avoidance may trigger negative stock price reactions (Hanlon & Slemrod, 2009) and is associated with activities that accumulate bad news that, over an extended period, may push the stock price crash risk over a tipping point (Kim et al., 2011), managers in fear of a looming stock price crash may reduce tax avoidance to prevent the exposure of bad news related to this tax avoidance. In particular, managers face incentives to rein in their firms' tax-avoidance activities when their firms face high short interest, during which period stock prices are more sensitive to bad news. Building on these arguments, we predict that managers will actively respond to high short-interest levels by reducing firm tax avoidance:

*H1.* Corporate tax avoidance is negatively associated with short interest.

## VARIABLE MEASUREMENT, MODEL, AND DATA

### *Measuring Tax Avoidance*

We use several measures of corporate tax avoidance because there is no single proxy used by prior literature that perfectly apprehends this underlying construct (Hanlon & Heitzman, 2010). We choose four measures following existing literature, each representing a unique aspect of the underlying concept. Because we measure tax avoidance as a response to short selling, such that managers must see and have time to modify tax-avoidance activities in response to short-interest levels, we calculate all tax-avoidance proxies as future measures relative to the short-selling variable (we provide details of the timing of our variable measurement in the modeling section). These four proxies are cash ETR (*CETR*), GAAP ETR (*GETR*), discretionary permanent book-tax differences (*DTAX*), and a tax-shelter prediction score (*SHELTER*).

*CETR* and *GETR* capture the overall annual tax-planning outcomes. A manager's strategic adjustment of a firm's tax-avoidance level in response to high short interest should be reflected in at least one (if not both) of these two variables. We calculate *CETR* as cash taxes paid (TXPD) divided by pretax income (PI) less special items (SPI). This variable is commonly used in the tax-avoidance literature, and it is affected by any tax-deferral strategies (e.g., accelerated depreciation for tax purposes) managers may use to reduce current-year cash taxes paid. We calculate *GETR* as total tax expense (TXT) divided by PI SPI. *GETR* differs from *CETR* in that it is not influenced by tax-deferral strategies, but it does reflect the effect of other accounting earnings-related strategies (e.g., designation of unremitted foreign earnings as permanently reinvested). Both variables together would capture the outcomes of overall changes in tax-avoidance activities due to short-selling pressure. Larger values of *CETR* and *GETR* represent less tax avoidance.<sup>7</sup>

The remaining two tax-avoidance measures are *DTAX* and *SHELTER*. Both variables derive from an array of financial statement ratios and reflect more egregious tax-avoidance activities. *DTAX* measures discretionary permanent

differences in a firm's book income and taxable income, and a larger value of *DTAX* is associated with aggressive tax reporting and aggressive financial reporting behavior (Frank et al., 2009). Following Frank et al. (2009), we calculate *DTAX* as the residual from the following regression estimated by year and industry, where industry is identified using two-digit Standard Industrial Classification (SIC) codes:<sup>8</sup>

$$\begin{aligned} PERMDIFF_{it} = & \alpha_0 + \alpha_1(1/AT_{it-1}) + \alpha_2INTANG_{it} + \alpha_3UNCON_{it} + \alpha_4MI_{it} \\ & + \alpha_5CSTE_{it} + \alpha_6\Delta NOL_{it} + \alpha_7PERMDIFF_{it-1} + \varepsilon_{it} \end{aligned} \quad (1)$$

*SHELTER* is an indicator variable equal to 1 for firms in the top quintile of the predicted probability that the firm is engaged in tax sheltering and 0 otherwise, where the predicted probability is based on the following model from Wilson (2009):

$$\begin{aligned} PROB\_SHELTER = & -4.30 + 6.63 \times BTD - 1.72 \times LEV + 0.66 \times LOG\_AT \\ & + 2.26 \times ROA + 1.62 \times FOREIGN + 1.56 \times R\&D \end{aligned} \quad (2)$$

Larger values of *DTAX* and *SHELTER* represent more tax avoidance.

### *Empirical Model*

We test our hypothesis using the following empirical model:

$$\begin{aligned} TAX\_AVOIDANCE_{t+1} = & \alpha_0 + \alpha_1SHORT\_INTEREST_t + \alpha_2LOG\_AT_{t+1} + \alpha_3LEV_{t+1} + \alpha_4ROA_{t+1} \\ & + \alpha_5FOREIGN_{t+1} + \alpha_6R\&D_{t+1} + \alpha_7\Delta NOL_{t+1} + \alpha_8DIS\_ACCRUAL_{t+1} \\ & + \alpha_9CAPEX_{t+1} + \alpha_{10}INST\_OWN_{t+1} + \alpha_{11}N\_ANALYSTS_{t+1} \\ & + \alpha_{12}BTM_{t+1} + \alpha_{13}PP\&E_{t+1} + \alpha_{14}SALES\_GROWTH_{t+1} + \alpha_{15}CFO_{t+1} \\ & + \alpha_{16}YEAR + \alpha_{17}INDUSTRY + \varepsilon_{t+1} \end{aligned} \quad (3)$$

Eq. (3) models *TAX\_AVOIDANCE* (proxies discussed before) as a function of *SHORT\_INTEREST*, the main variable of interest. The Financial Industry Regulatory Authority (FINRA) requires firms to report the gross volume of open short positions on a monthly basis at every mid-month. We obtain short-interest volume reported eight and a half months before tax-avoidance variables are measured (i.e., in the middle of the fourth month after previous fiscal year-end) and scale it by common shares outstanding at the beginning of the month (Chi et al., 2014; Dechow et al., 2001; Hirshleifer et al., 2011; Richardson, 2003).<sup>9</sup> During this period, short-selling activities are expected to escalate, responding to fundamental ratios released in the prior year's financial