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Strategic Deviation and Corporate Tax Avoidance: A Risk Management Perspective

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Abstract: We examine the association between strategic deviation—defined as the deviation of firms' resource allocation from that of industry peers—and corporate tax avoidance. By combining the agency perspective with the risk aspect, we argue that managers of firms with high strategic deviation avoid tax compared with those of firms with low strategic deviation. High-strategic-deviant firms who avoid tax are likely to face the risk of compromising firm value. Based on a large sample of 40,168 US firm-year observations for the period 1987–2020, we find evidence supporting our hypothesis. A series of robustness tests validates our main finding. We further provide evidence to suggest that the positive association between strategic deviation and tax avoidance is stronger for deviant firms with high financial constraints, low institutional ownership, firms operating in more competitive markets, and procuring higher auditor provided tax services from incumbent auditors. Importantly, we show that the capital market penalises tax avoidance strategies undertaken by the deviant firms.

Keywords: strategic deviation; tax avoidance; information asymmetry; product market competition; risk management; financial constraints

JEL Classification: H26; M10; M41

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1. Introduction

This study examines the association between strategic deviation and tax avoidance. Tax avoidance is a real economic decision, which results in significant cash savings either by deferring tax payment for several years or by permanently avoiding the payment of taxes (Wilson 2009). Hence, it is important to understand whether or not managers use these cash savings for personal benefits because tax avoidance can also result in legal enforcement and agency costs (Desai and Dharmapala 2006).[1] A stream of research investigates various determinants of tax avoidance (see Hanlon and Heitzman 2010; Jacob 2022; Wilde and Wilson 2018). However, there is lack of evidence on whether the pattern of resource allocation, i.e., the firm's business strategy, affects tax avoidance. The exception is Higgins et al. (2015) who use Miles and Snow's (1978, 2003) strategy typology, and find that prospector firms engage in more tax avoidance than defender firms do. We, on the other hand, consider *strategic deviation*, conceptualised as the deviation of firms' strategies from those of industry peers (Barney 1991), and its relation with corporate tax avoidance. Since strategic deviation requires firms to be benchmarked against its industry peers, we believe examining the relation between strategic deviation and tax avoidance provides a better depiction of the impact of resource allocation on tax avoidance behaviour than considering firm-level strategic impact does.

Strategic deviation makes it more difficult for shareholders to compare the performance of the deviant firms with industry norms (Carpenter 2000; Litov et al. 2012), resulting

in an increase in information processing costs and creating information asymmetry between managers and shareholders (Habib et al. 2023). Furthermore, strategic deviation involves venturing into uncharted territory or adopting unconventional strategies, which creates difficulties in predicting outcomes, and there is a higher risk of encountering unforeseen obstacles or failures (Carpenter 2000; Deephouse 1999; Litov et al. 2012). In this paper, we combine the agency friction and risk perspective of strategic deviation, and argue that deviant firms are likely to avoid tax.

We then perform some cross-sectional tests to determine the settings where the positive association between strategic deviation and tax avoidance manifests itself. First, we examine the moderating effect of financial constraints. For a financially constrained firm, tax avoidance is an ideal source of internal financing (Edwards et al. 2016; Wilson 2009) because external financing is costly (Law and Mills 2015) and accessing it is challenging (Habib et al. 2021). Therefore, high-strategic-deviant firms are more likely to avoid tax when they are faced with financial constraints. Next, we examine the moderating effect of institutional ownership. Institutional investors reduce information asymmetry, as they possess private information about managerial actions (El-Gazzar 1998), thereby enabling them to reduce opportunistic managerial behavior (Shleifer and Vishny 1986). We argue that deviant firms with low institutional ownership are plagued with an acute information asymmetry problem and hence are more likely to engage in tax avoidance activities.

We then examine the moderating role of product market competition. Firms with high product market competition experience high risk due to increased cash flow and earnings volatility (Babar and Habib 2021). Deviant firms experience high risk and uncertainty, which further escalates when there is high competition. Therefore, it is more likely that managers in such firms engage in tax avoidance to save more cash to shield firms from competition-induced risks and uncertainty. Finally, we explore the moderating effect of auditor-provided tax services. When auditors provide tax services, clients are benefited because of the knowledge spill over from the auditing function to the taxation function (Chyz et al. 2021; McGuire et al. 2012). On the other hand, the impaired independence perspective suggests that auditor independence could be compromised when they provide tax services to their clients (Sun and Habib 2021). Given the extreme firm performance (Tang et al. 2011) and cash flow uncertainty (Dong et al. 2021), deviant firms may have an incentive to avoid tax to conserve cash. Although the Securities and Exchange Commission (Securities and Exchange Commission (SEC) 2006) have prohibited many non-audit services to be performed by incumbent audit firms, the SEC continued to allow audit firms to provide tax services to their clients. It can, therefore, be argued that deviant firms may procure tax services from their incumbent auditors as a tax avoidance tool (Chyz et al. 2021).

Using 40,168 US firm-year observations from 1987 to 2020, we find that strategic deviation is positively and significantly associated with tax avoidance. A one-standard-deviation increase in strategic deviation increases tax avoidance (GAAP effective tax rates) by around 2.45% in relation to the mean GAAP effective tax rates. Findings remain robust in terms of possible endogeneity concerns. We also find that the association between strategic deviation and tax avoidance is more pronounced for firms with high financial constraints and low institutional ownership, for firms operating in more competitive product markets, and firms procuring more auditor-provided tax services.

We contribute to the tax avoidance literature by providing empirical evidence on whether or not firms with deviant strategies engage in tax avoidance. We also expand upon the research concerning whether or not firms that engage in strategic deviation and tax avoidance compromise their value due to the elevated risk. A plethora of research has examined the numerous determinants of tax avoidance (Hanlon and Heitzman 2010). However, whether or not strategic deviation affects corporate tax avoidance remains unknown. Exploring this issue is important because Dyreng et al. (2017) show that corporate tax avoidance has increased steadily over the past 25 years, as reflected by a decrease in cash effective tax rates of about 0.4 percentage points per year (a cumulative decline of between 5 and 10 percentage points). We also contribute to the evolving literature

on strategic deviation. Deviant firms hold more cash (Dong et al. 2021), exhibit extreme firm performance (Tang et al. 2011), have less stock return synchronicity (Ye et al. 2021), have more short-maturity debt (Provaty et al. 2022), and make more inefficient investments (Ranasinghe and Habib 2023) compared with less deviant firms. We extend this literature by documenting its association with tax avoidance: a real economic decision.

The paper is organised as follows. This introduction is followed by a development of the literature and hypotheses in Section 2. Section 3 presents the methodology, while Section 4 discusses the empirical results and robustness tests. Section 5 concludes the paper.

2. Literature and Hypotheses Development

2.1. Strategic Deviation and Tax Avoidance

Tax avoidance can be conceptualised as activities that reduce explicit taxes. Hanlon and Heitzman (2010, p. 137) define tax avoidance as the "reduction of explicit taxes" and state that "if tax avoidance represents a continuum of tax planning strategies where something like municipal bond investments are at one end, then terms such as 'noncompliance', 'evasion', 'aggressiveness', and 'sheltering' would be closer to the other end of the continuum." Tax avoidance provides benefits to firms in the form of wealth transfers from the government to shareholders. Such strategies are usually long-term in nature, either permanently avoiding or deferring tax payment for several years. As a result, the cash savings from tax avoidance can be substantial (Mills et al. 1998). However, tax avoidance activities also impose costs on firms. Such costs include the reputation costs of avoiding tax, such as penalties and legal fees that need to be paid in case of enforcement, information systems development costs for tax management activities, and the agency costs of aggressive tax avoidance practices (Desai and Dharmapala 2009). Similarly, tax avoidance creates regulatory scrutiny and legal risks. According to Hanlon et al. (2014), some firms fail to avoid regulatory scrutiny stemming from their tax avoidance behaviour.

A subset of extant research examines whether or not management incentives determine the tax avoidance activities of the firm (Armstrong et al. 2012; Gaertner 2014; Phillips 2003; Rego and Wilson 2012), while others investigate various firm-specific determinants of corporate tax avoidance (Dyreng et al. 2013; Hasan et al. 2021a, 2021b; Lisowsky 2010; Markle and Shackelford 2011). Another stream of research examines whether or not ownership structure (Badertscher et al. 2013; Chen et al. 2010; Cheng et al. 2012; Gaertner 2014; Khan et al. 2017), governance, and executive characteristics (Armstrong et al. 2015; Bauer 2016; Desai et al. 2007; Dyreng et al. 2010; Koester et al. 2017; Law and Mills 2017) affect tax avoidance. In an important study, Higgins et al. (2015) find that prospector-strategy firms appear to take more aggressive and less sustainable tax positions than defender-strategy firms. While strategy typology explains three types of business strategies that may simultaneously exist within industries—prospectors, defenders, and analyzers (Miles and Snow 1978, 2003)—strategic deviation explains how the pattern of resource allocation of a firm can vary from that of its industry peers (Deephouse 1999; Finkelstein and Hambrick 1990). Drawing insights from institutional theory, DiMaggio and Powell (1983) suggest that organisations pursuing similar strategies tend to be homogenous. While conformity to the industry norms is less risky and more defensible (Tang et al. 2011), deviating from the norms increases risk and uncertainty (Dong et al. 2021). Hence, it is interesting to know whether or not deviating from industry practices is associated with corporate tax avoidance activities.

Drawing insights from agency frictions, we suggest that deviant firm managers engage in more tax-avoiding activities. Deviation makes the firm different from industry norms, which makes it more difficult for shareholders to evaluate and assess the performance of firms and managers (Litov et al. 2012). The agency view of the tax avoidance literature suggests that opportunistic managers employ tax avoidance as a resource diversion mechanism (Desai and Dharmapala 2006; Desai et al. 2007). Considering the agency perspective, Dong et al. (2021) find that deviant firm managers hold cash, which reduces firm value.[2] Drawing insights from a risk perspective, strategic deviation introduces uncertainty and

elevates risk through ventures into new markets and products, as highlighted by Carpenter (2000), Deephouse (1999), and Litov et al. (2012). By integrating this risk perspective with the concept of agency problems in deviant firms, we argue that firms engaging in strategic deviation are more inclined to avoid taxes.

In contrast, one can argue that deviant firms are *less likely* to engage in tax avoidance due to the costs involved in tax planning activities. Tax compliance, planning, and implementation incur a significant cost and require sophisticated information systems to be in place (Gallemore and Labro 2015). Due to the financial constraints encountered by the deviant firms and their need for funds for routine business activities, deviant firms may find it difficult to invest substantial resources into tax planning. As a result, deviant firms may engage in lower tax avoidance activities. In this paper, we take the agency view and risk perspective and develop the following directional hypothesis:

H1. *There is a positive association between strategic deviation and corporate tax avoidance.*

It is important to understand some cross-sectional settings where the relationship between strategic deviation and tax avoidance could manifest itself. We choose financial constraints, institutional ownership, product market competition, and auditor-provided tax services as four such settings and develop four separate hypotheses as follows.

2.2. Strategic Deviation and Tax Avoidance: The Moderating Effect of Financial Constraints

Financial constraint is the failure of a firm to raise the required funding to finance its optimal path of growth (Carreira and Silva 2010). Firms with financial constraints incur a high cost of capital if they use external financing to fund future investments (Law and Mills 2015). Accessing external financing is also a challenge for a financially constrained firm (Habib et al. 2021). Therefore, internal financing is more appealing for a constrained firm to fund desired investments. Tax avoidance assists firms, financially constrained firms in particular, in conserving cash and hence, is an attractive source of internal financing (Edwards et al. 2016; Law and Mills 2015; Wilson 2009).[3] Law and Mills (2015), for example, find that financially constrained firms plan their tax aggressively, evidenced by high unrecognised tax benefits, low effective tax rates, high audit adjustments, and an increase in the use of tax havens. Strategic-deviant firms require resources to pursue new products and markets (Porter 1980), which would be challenging in the context of financial constraints. Therefore, we argue that the positive association between strategic deviation and tax avoidance is stronger for financially constrained firms. Thus, we develop the following hypothesis:

H2. *The positive association between strategic deviation and tax avoidance is stronger for firms with high financial constraints.*

2.3. Strategic Deviation and Tax Avoidance: The Moderating Role of Institutional Ownership

Research on the impact of institutional ownership on tax avoidance does not provide conclusive evidence. For example, using the Russell index reconstitution setting as an exogenous shock to measure institutional ownership, Khan et al. (2017) find that investors with passive and diversified holdings increase tax avoidance. Using evidence from the Chinese A-share market, Jiang et al. (2021) also suggest that institutional investors are positively related with tax avoidance. Khurana and Moser (2013), on the other hand, find that institutional ownership reduces tax avoidance. However, as discussed before, deviant firms suffer from information asymmetry and are likely to avoid strict external monitoring compared with other industry peers (Litov et al. 2012). Therefore, it is likely that deviant firms have lower institutional ownership, which reduces external monitoring. Thus, deviant firm managers have the opportunity to engage in more tax avoidance in a low-institutional-ownership context. Accordingly, we develop the following hypothesis:

H3. *The positive association between strategic deviation and tax avoidance is stronger for firms with low institutional ownership.*

2.4. Strategic Deviation and Tax Avoidance: The Moderating Effect of Product Market Competition

A stream of research suggests that firms operating in a highly competitive environment face high-risk triggered by increased cash flow and earnings volatility (see Babar and Habib 2021 for a review of this stream of the literature). Mithas et al. (2013, p. 517) note that "when industry concentration is lower. . ., firms can act in distinct and unique ways with less danger of being noticed and, hence, they can avoid a quick retaliatory or imitative response by competitors. Consequently, firms are inclined to converge to the industry norm under high industry concentration, and more inclined to diverge from the industry norm under low industry concentration." As elaborated above, deviating from industry peers results in negative consequences, such as acute information asymmetry, high risk, and uncertainty. Thus, a deviant firm's risk is escalated when the competition is high. As a result, managers of deviant firms operating in a highly competitive environment have incentives to save more cash by engaging in tax avoidance activities to buffer risks and uncertainty. On the other hand, deviant firm managers may choose to operate in a low-competition environment because the lower competition creates some degree of insulation from competitive threats and a natural hedge against economic downturns, thus providing incentives for managers to engage in high tax avoidance. Kubick et al. (2015) find evidence supporting the positive association between product market power and tax avoidance, suggesting that firms operating in less competitive markets are more likely to engage in tax avoidance.[4] Based on this discussion, we develop the following non-directional hypothesis:

H4. *Product market competition moderates the positive association between strategic deviation and tax avoidance.*

2.5. Strategic Deviation and Tax Avoidance: The Moderating Effect of Auditor-Provided Tax Services (APTS)

Two theoretical perspectives, namely the 'impaired independence' and the 'knowledge spillover' perspectives, support the association between APTS and tax avoidance (Sun and Habib 2021). From the impaired independence perspective, auditor independence could be compromised when they provide tax services. Providing non-audit services such as tax to clients increases client-specific quasi-rents, enhancing the bond between the auditor and the client (Sun and Habib 2021). Therefore, it is more likely for the auditors to approve clients' tax strategies. Supporting this argument, Cook et al. (2020) find that decoupling audit and tax services and receiving tax services from a new auditor ensure the auditor's independence. From a knowledge spillover view, the auditor's knowledge about tax is transferable between the auditor and the client. With the expectation of reducing tax, auditors could use their client-specific or industry-specific expertise to advise clients on aggressive tax strategies. Empirical evidence also suggests a positive association between APTS and tax avoidance. Chyz et al. (2021) find that companies paying their auditors for tax planning minimise tax rates and increase cash savings. McGuire et al. (2012) find that the audit firm's tax-specific industry expertise significantly impacts clients' tax avoidance. Given the extreme firm performance (Tang et al. 2011) and cash flow uncertainty (Dong et al. 2021), deviant firms may have an incentive to avoid tax to conserve cash. Since paying incumbent auditors for tax planning services can help firms achieve tax avoidance objectives (Chyz et al. 2021; McGuire et al. 2012), deviant firms may purchase more APTS to avoid tax. However, as discussed in H2, deviant firms are likely to be financially more constrained than their non-deviant counterparts, which could make investments in tax planning, for example, procuring APTS, costly. We hypothesise the following:

H5. *APTS moderates the positive association between strategic deviation and tax avoidance.*

3. Methodology

3.1. Sample

This research used the US data from 1987 to 2020 sourced from Compustat. We start from 1987 since income tax paid (TXPD) data are available from this period onwards. Our regressions span the period 1992 to 2020 because we require five years of lagged data for calculating strategic deviation (STR_DEV). To reduce the impact of outliers, we winsorise all the continuous variables at the top and bottom one percentiles. We also exclude financial (SIC codes 60–69) and utility firms (SIC code 49). We eliminate observations with missing values for the measurement of key dependent, independent, and control variables. Our final sample has 40,168 firm-year observations. The number of observations varies in any given regression due to the model-specific data requirements. Table 1 presents the industry distribution based on the two-digit SIC industry classification. About 28% of sample observations are from machinery, electrics, and computer equipment. Nearly 16% of the sample observations are from business services, followed by chemical, petroleum, rubber, and allied products, which amount to 15%.

Table 1. Industry distribution.

Code	Industry	Observations	% Observation
1–14	Agriculture and mining	2775	6.91%
15–17	Building construction	402	1.00%
20–21	Food and kindred products	1567	3.90%
22–23	Textile mill products and apparels	625	1.56%
24–27	Lumber, furniture, paper, printing	1560	3.88%
28–30	Chemical, petroleum, rubber, allied products	6119	15.23%
31–34	Metal	1965	4.89%
35–39	Machinery, electrical, computer equipment	11,169	27.81%
40–48	Railroad and other transportation	973	2.42%
50–52	Wholesale goods, building materials	2105	5.24%
53–59	Store merchandise, auto dealers, home furniture stores	2201	5.48%
70–79	Business services	6412	15.96%
80–99	Other	2295	5.71%
	Total	40,168	100.00%

Note: This table presents the industry distribution of the sample observations.

3.2. Variable Measurements

3.2.1. Independent Variable: Strategic Deviation (STR_DEV)

Following prior research (Dong et al. 2021; Ye et al. 2021), we measure strategic deviation using six indicators, i.e., (a) advertising intensity, measured as advertising expenditure (XAD) over sales (REVT); (b) R&D intensity, measured as R&D expenditure[5] scaled by sales; (c) plant and equipment newness, measured as net property, plant and equipment (PPENT) scaled by gross property, and plant and equipment (PPEGT); (d) non-production overhead, measured using selling, general, and administrative (SG&A) expenses scaled by sales; (e) inventory level, measured using inventories (INVT) scaled by sales; and (f) financial leverage, measured as debt (DLTT) over equity (CEQ). We standardise each of the measures by industry-year based on two-digit SIC codes. Then, we take the absolute difference between a firm's score and its industry average. The STR_DEV is the summation of the six standardised difference scores. A higher value of STR_DEV suggests a greater deviation of a focal firm's strategy from its industry norms.

3.2.2. Dependent Variable: Tax Avoidance (AVOID)

We use three primary measures of tax avoidance. First, we use the effective tax rate defined under the Generally Accepted Accounting Principles (GETR). We measure this as total income taxes (including current and deferred taxes) (TXT) over pre-tax income before special items (PI-SPI). The second measure is CETR, which is calculated as cash taxes

paid (TXPD) over pre-tax income before special items (PI-SPI). This measure characterises tax avoidance resulting from tax deferral strategies. Finally, we use CUR_ETR, which is calculated as total income taxes minus deferred taxes (TXT-TXDI) over pre-tax income before special items (PI-SPI). Prior research widely used these tax avoidance measures (Cen et al. 2017; Hasan et al. 2014, 2021a, 2021b; Huang et al. 2016). We truncate these measures within the range [0, 1] and then multiply them by –1; thus, higher values suggest a greater extent of tax avoidance. We use AVOID followed by a subscript in the correlation and regression analysis (e.g., $AVOID_{GETR}$) but use the truncated but positive values of AVOID measures in the descriptive table. We also use long-run CETR (CETR_LONG), and the cash ratio (CASH_RATIO) as two additional tax avoidance measures. A higher value of these two measures also implies higher tax avoidance.

3.3. Empirical Model

We employ the following OLS model to test our main hypothesis:

$$\begin{aligned} AVOID_{i,t} = \beta_0 &+ \beta_1 STR\_DEV_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 FORINC_{i,t} + \beta_4 LEV_{i,t} + \beta_5 MTB_{i,t} + \beta_6 ROA_{i,t} + \beta_7 INTAN_{i,t} \\ &+ \beta_8 R\&D_{i,t} + \beta_9 CASH_{i,t} + \beta_{10} NOL\_{i,t} + \beta_{11} \Delta NOL_{i,t} + \beta_{12} TANG_{i,t} + \beta_{13} EQINC_{i,t} \\ &+ \sum industry\ effects + \sum year\ effects + \varepsilon_{i,t} \end{aligned} \quad (1)$$

The main variable of interest is STR_DEV, the calculation of which is explained in Section 3.2.1. A positive and significant β_1 value will support our hypothesis that deviant firms are more likely to avoid tax.

Following prior research, we include several control variables likely to affect a firm's tax avoidance behaviour. First, we include firm size (SIZE) and expect a negative association with AVOID as large firms are likely to engage in less tax avoidance activity. We control for foreign income (FORINC) because firms with foreign operations have more opportunities to avoid tax (Rego 2003). We include financial leverage (LEV) but do not develop a prediction with respect to tax avoidance. On one hand, the debt tax shield resulting from high leverage may disincentivise managers from costly tax planning (Graham 2000). On the other hand, high leverage firms may avoid tax, to save cash as a debt-servicing mechanism (Badertscher et al. 2013; Graham and Tucker 2006). We control for the market-to-book ratio (MTB) to account for the association between a firm's growth and tax avoidance. Chen et al. (2010) find that due to growth firms' significant capital investments, they receive substantial tax credits and depreciation allowances, and hence, have less need for tax avoidance. However, growth firms may have a lack of expertise in tax strategies and, therefore, may end up paying higher tax than their non-growth firm counterparts (Cheng et al. 2012). We include return on assets (ROA) to control for profitability, as profitable firms are subject to higher taxes but also have more resources for tax planning to reduce their tax liabilities and tax rates (McGuire et al. 2012). Firms with higher levels of research and development (R&D) generally receive tax deductions and tax credits for their activities, thereby increasing tax avoidance opportunities. We include intangible assets (INTAN) and property, plant, and equipment (TANG) because differences in tax and accounting rules relating to intangible and tangible assets may affect tax avoidance activities. We include cash holdings (CASH) because firms with more cash may have fewer incentives to engage in tax avoidance. However, firms adopting aggressive tax strategies may hold more cash as a cushion against future settlements from tax prosecution by tax enforcement agencies (e.g., Hanlon et al. 2017). We control for whether or not a firm has a net operating loss carry forward (NOL_D) and for the annual change in tax loss carry forward (ΔNOL), because prior research has shown that a firm can use the loss carry forward to reduce its tax liability (e.g., Chen et al. 2010; McGuire et al. 2012). Finally, we include equity income (EQINC) as an additional control variable, because it reduces the firm's effective tax rate (Huang et al. 2016). Our regression controls for industry- and year-fixed effects.

4. Results

4.1. Descriptive Statistics

We present descriptive statistics of the variables used in the study in Table 2. The mean values of GETR, CETR, and CUR_ETR are 27%, 25%, and 25%, respectively. The mean (median) value of STR_DEV is 2.185 (1.803). The average firm size (SIZE) in our sample is 5.70, and this has a leverage of 19%. MTB takes a mean value of 3.47. The sample firms, on average, are loss-making firms (a mean ROA of −0.30%). Sample firms hold a considerable amount of cash (CASH) (21% of average total assets). The sample firms have an average income from foreign operations (FORINC) of 31%. Intangible assets (INTAN) have an average of 13%.

Table 2. Descriptive statistics.

	Variables	N	Mean	S.D.	0.25	Median	0.75
Tax avoidance measures	GETR	40,168	0.266	0.169	0.378	0.31	0.136
	CETR	30,212	0.250	0.170	0.353	0.249	0.120
	CUR_ETR	36,719	0.246	0.178	0.368	0.267	0.084
	CASH_RATIO	29,460	0.203	0.169	0.285	0.179	0.075
	CETR_LONG	21,698	0.270	0.141	0.350	0.276	0.182
Independent variable	STR_DEV	40,168	2.185	1.631	1.250	1.803	2.556
Control variables	SIZE	40,168	5.713	2.131	4.151	5.611	7.179
	FORINC	40,168	0.309	0.462	0.000	0.000	1.000
	LEV	40,168	0.188	0.179	0.014	0.154	0.307
	MTB	40,168	3.474	3.992	1.384	2.256	3.853
	ROA	40,168	−0.003	0.236	0.011	0.050	0.089
	INTAN	40,168	0.132	0.176	0.000	0.051	0.203
	R&D	40,168	0.055	0.116	0.000	0.005	0.061
	CASH	40,168	0.208	0.233	0.033	0.113	0.302
	NOL_D	40,168	0.545	0.498	0.000	1.000	1.000
	ΔNOL	40,168	0.070	0.302	0.000	0.000	0.008
	TANG	40,168	0.265	0.235	0.085	0.189	0.372
	EQINC	40,168	0.001	0.004	0.000	0.000	0.000
Cross-sectional variables	SA_INDEX	30,938	−3.270	0.700	−3.754	−3.315	−2.820
	IOWN	21,731	0.482	0.304	0.213	0.465	0.740
	FLUID	31,870	6.560	3.718	3.937	5.765	8.293
	APTS	14,094	0.136	0.127	0.041	0.099	0.195

Note: This table shows the summary statistics of the main variables used in the study.

Table 3 presents Pearson correlations between the variables that we used in the regression models. All three measures of tax avoidance, $AVOID_{GETR}$, $AVOID_{CETR}$, and $AVOID_{CUR\_ETR}$, are significantly ($p < 0.01$) correlated with each other (ranging from 0.477 to 0.662). This suggests that these measures capture similar underlying constructs. All three measures of tax avoidance are positively and significantly correlated with STR_DEV (the correlation ranges from 0.029 to 0.054). We find that tax avoidance ($AVOID_{GETR}$) is negatively and significantly correlated with ROA and TANG, while it is positively and significantly correlated with all other control variables except SIZE, LEV, and EQINC.

Table 3. Correlation analysis.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
$AVOID_{GETR}$ [1]	1.000															
$AVOID_{CETR}$ [2]	**0.477**	1.000														
$AVOID_{CUR\_ETR}$ [3]	**0.639**	**0.662**	1.000													
STR_DEV [4]	**0.037**	**0.029**	**0.054**	1.000												
SIZE [5]	−0.006	−0.003	**0.024**	**−0.040**	1.000											
FORINC [6]	**0.041**	0.007	−0.011	**−0.107**	**0.390**	1.000										
LEV [7]	0.018	**0.052**	**0.108**	**0.098**	**0.305**	**0.052**	1.000									

Table 3. *Cont.*

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
MTB [8]	**0.117**	**0.125**	**0.067**	**0.140**	**0.023**	**0.051**	**0.064**	1.000								
ROA [9]	**−0.281**	**−0.204**	**−0.251**	**−0.138**	**0.165**	**0.104**	**−0.080**	**−0.056**	1.000							
INTAN [10]	**0.029**	**0.021**	**0.019**	**−0.060**	**0.305**	**0.207**	**0.214**	**0.026**	**−0.027**	1.000						
R&D [11]	**0.252**	**0.182**	**0.148**	**−0.080**	**−0.196**	**0.042**	**−0.227**	**0.214**	**−0.430**	**−0.077**	1.000					
CASH [12]	**0.189**	**0.141**	**0.078**	**−0.023**	**−0.247**	**−0.046**	**−0.463**	**0.191**	**−0.115**	**−0.227**	**0.441**	1.000				
NOL_D [13]	**0.287**	**0.299**	**0.309**	−0.005	**0.249**	**0.268**	**0.099**	**0.092**	**−0.194**	**0.265**	**0.149**	**0.086**	1.000			
ΔNOL [14]	**0.204**	**0.133**	**0.160**	**0.097**	**−0.124**	**−0.073**	**−0.026**	**0.161**	**−0.520**	−0.004	**0.296**	**0.173**	**0.115**	1.000		
TANG [15]	**−0.023**	**0.069**	**0.136**	**0.038**	**0.123**	**−0.148**	**0.287**	**−0.109**	**0.027**	**−0.354**	**−0.252**	**−0.374**	**−0.141**	**−0.050**	1.000	
EQINC [16]	0.015	0.010	**0.022**	**0.022**	**0.169**	**0.065**	**0.056**	−0.002	**0.057**	−0.010	**−0.070**	**−0.095**	0.005	**−0.032**	**0.052**	1.000

Note: This table shows the Pearson correlation coefficient between the variables used in the models. Bold coefficients are significant at $p < 0.01$.

4.2. Regression Results

In Table 4, we present the regression estimates for the association between strategic deviation and corporate tax avoidance while controlling for other factors associated with a firm's propensity to avoid tax, as in Equation (1) above. Column (1) shows that the coefficient on STR_DEV is positive and significant (β = 0.004, $p < 0.01$), suggesting that deviant firms tend to engage more in tax avoidance. The reported result is also economically meaningful. For example, a one-standard-deviation increase in STR_DEV (1.631) increases tax avoidance by around 2.45% in relation to the mean GETR (0.266) (estimated as $[(1.631 \times 0.004)/0.266) \times 100]$. As shown in Column (2), we also find the coefficient of STR_DEV to be positive and significant (β = 0.003, $p < 0.01$) when $AVOID_{CETR}$ is used as the tax avoidance measure. This result is also consistent when we measure AVOID using CUR_ETR (β = 0.004, $p < 0.01$). Taken together, the reported results are consistent with the notion that deviant firms are more likely to avoid tax and hence support H1. The sign and significance of the control variables is generally consistent with prior tax avoidance research. The coefficients on SIZE and ROA are negative and highly significant. The coefficients on CASH, TANG, and MTB are positive and highly significant. The coefficients on both NOL_D and ΔNOL are positive and significantly consistent with prior research, showing that firms use loss carry forward to reduce tax liability (Chen et al. 2010; McGuire et al. 2012).

Table 4. Baseline regression result.

	$AVOID_{GETR}$	$AVOID_{CETR}$	$AVOID_{CUR\_ETR}$
	(1)	**(2)**	**(3)**
	OLS	**OLS**	**OLS**
STR_DEV	0.004 ***	0.003 ***	0.004 ***
	[0.001]	[0.001]	[0.001]
SIZE	−0.007 ***	−0.009 ***	−0.010 ***
	[0.001]	[0.001]	[0.001]
FORINC	−0.013 ***	−0.010 ***	−0.025 ***
	[0.003]	[0.003]	[0.003]
LEV	0.037 ***	0.064 ***	0.080 ***
	[0.008]	[0.010]	[0.008]
MTB	0.002 ***	0.003 ***	0.000
	[0.000]	[0.000]	[0.000]
ROA	−0.108 ***	−0.070 ***	−0.107 ***
	[0.006]	[0.009]	[0.006]
INTAN	0.048 ***	0.061 ***	0.060 ***
	[0.010]	[0.011]	[0.010]
R&D	0.061 ***	0.196 ***	0.054 ***
	[0.014]	[0.023]	[0.013]
CASH	0.155 ***	0.121 ***	0.140 ***
	[0.008]	[0.010]	[0.008]

Table 4. *Cont.*

	$AVOID_{GETR}$	$AVOID_{CETR}$	$AVOID_{CUR\_ETR}$
	(1)	**(2)**	**(3)**
	OLS	**OLS**	**OLS**
NOL_D	0.069 ***	0.079 ***	0.094 ***
	[0.003]	[0.003]	[0.003]
ΔNOL	0.031 ***	−0.002	0.026 ***
	[0.003]	[0.006]	[0.003]
TANG	0.074 ***	0.145 ***	0.164 ***
	[0.011]	[0.012]	[0.011]
EQINC	1.190 ***	1.257 ***	1.061 ***
	[0.266]	[0.304]	[0.274]
Industry	Yes	Yes	Yes
Year	Yes	Yes	Yes
Constant	−0.454 ***	−0.364 ***	−0.421 ***
	[0.029]	[0.026]	[0.021]
Observations	40,168	30,212	36,719
Adj. R2	0.38	0.20	0.35

Note: This table presents the OLS regression results for the relationship between strategic deviation and tax avoidance. $AVOID_{GETR}$, $AVOID_{CETR,}$ and $AVOID_{CUR\_ETR,}$ the three proxies for tax avoidance, are truncated between [0, 1] and then multiplied by −1 so that higher values imply more tax avoidance. Robust standard errors clustered by firm are in parentheses. *** denote two-tailed *p*-value less than 0.01, respectively. Variables are defined in the Appendix A.

4.3. Addressing Endogeneity

In the above model, we control for various firm characteristics that might explain the association between strategic deviation and tax avoidance. However, the reported results could be biased because of endogeneity concerns. Endogeneity concerns may arise from a reverse causation problem (i.e., firms that avoid more tax are less conformant to strategic norms), omitted variable concerns, and design choices. We employ several endogeneity tests to rule out the above concerns and present the results in Table 5. First, we estimate fixed-effect models. As presented in Panel A, our original results across all three measures of AVOID hold when we use fixed-effect estimates. For example, the coefficient on $AVOID_{GETR}$ remains positive and significant in the fixed-effect specification ($\beta = 0.002$, $p < 0.05$). Next, we address design choices with the use of the entropy-balancing method. The entropy-balancing method improves covariate balance when compared with propensity-score approaches (McMullin and Schonberger 2020). Further, entropy balancing increases the balancing quality while retaining all observations in both the treatment and control groups (Hainmueller 2012). To perform the entropy balancing test, we divide our sample into two groups based on the median STR_DEV. We consider firm-year observations with the above-median STR_DEV as the treated group and the below-median one as the control group. We present the results in Panel B. We first report the means, variances, and skewness of all covariates before and after balancing. The results are consistent with the assertion that covariates are balanced between treated and control groups. Then, we run our main model using the entropy-balanced sample. The coefficient on STR_DEV is positive and significant for $AVOID_{GETR}$ ($\beta = 0.005$, $p < 0.01$).

Table 5. Endogeneity tests.

Panel A: Fixed-effect estimates			
	$AVOID_{GETR}$	$AVOID_{CETR}$	$AVOID_{CUR\_ETR}$
	(1)	**(2)**	**(3)**
	FFE	**FFE**	**FFE**
STR_DEV	0.002 **	−0.000	0.002 ***
	[0.001]	[0.001]	[0.001]
SIZE	−0.021 ***	−0.023 ***	−0.025 ***
	[0.002]	[0.003]	[0.002]

Table 5. *Cont.*

FORINC	−0.000	0.010 **	0.001
	[0.003]	[0.004]	[0.004]
LEV	0.033 ***	0.009	0.044 ***
	[0.009]	[0.012]	[0.010]
MTB	0.000 *	0.002 ***	−0.000
	[0.000]	[0.000]	[0.000]
ROA	−0.053 ***	0.003	−0.030 ***
	[0.006]	[0.010]	[0.006]
INTAN	0.068 ***	0.050 ***	0.052 ***
	[0.013]	[0.017]	[0.014]
R&D	−0.034 **	−0.006	−0.031 **
	[0.016]	[0.031]	[0.013]
CASH	0.076 ***	0.062 ***	0.054 ***
	[0.011]	[0.014]	[0.011]
NOL_D	0.058 ***	0.067 ***	0.079 ***
	[0.004]	[0.004]	[0.004]
ΔNOL	0.014 ***	−0.012 **	0.010 ***
	[0.003]	[0.006]	[0.002]
TANG	0.027	0.063 ***	0.072 ***
	[0.017]	[0.020]	[0.017]
EQINC	0.754 ***	1.744 ***	1.095 ***
	[0.279]	[0.412]	[0.322]
Industry	No	No	No
Year	Yes	Yes	Yes
Firm	Yes	Yes	Yes
Constant	−0.333 ***	−0.232 ***	−0.278 ***
	[0.015]	[0.021]	[0.017]
Observations	40,168	30,212	36,719
Adj. R2	0.06	0.05	0.08

Panel B: Entropy-balancing test
Covariate matching

	Before = Without weighting						After = With weighting					
	Mean	**Variance**	**Skewness**	**Mean**	**Variance**	**Skewness**	**Mean**	**Variance**	**Skewness**	**Mean**	**Variance**	**Skewness**
SIZE	5.569	4.623	0.222	5.836	4.438	0.239	5.569	4.623	0.222	5.569	4.623	0.222
FORINC	0.247	0.186	1.172	0.362	0.231	0.576	0.247	0.186	1.172	0.247	0.186	1.171
LEV	0.202	0.038	0.851	0.176	0.026	0.708	0.202	0.038	0.851	0.202	0.038	0.852
MTB	3.590	20.280	3.283	3.375	12.170	3.445	3.590	20.280	3.283	3.590	20.280	3.283
ROA	−0.016	0.069	−3.973	0.007	0.044	−4.276	−0.016	0.069	−3.973	−0.016	0.069	−3.973
INTAN	0.120	0.029	1.688	0.143	0.033	1.390	0.120	0.029	1.688	0.120	0.029	1.687
R&D	0.045	0.014	4.196	0.063	0.013	3.624	0.045	0.014	4.196	0.045	0.014	4.195
CASH	0.199	0.053	1.551	0.215	0.055	1.349	0.199	0.053	1.551	0.199	0.053	1.551
NOL_D	0.521	0.250	−0.085	0.565	0.246	−0.263	0.521	0.250	−0.085	0.521	0.250	−0.085
ΔNOL	0.081	0.109	4.454	0.061	0.076	5.007	0.081	0.109	4.454	0.081	0.109	4.454
TANG	0.280	0.057	0.992	0.252	0.053	1.338	0.280	0.057	0.992	0.280	0.057	0.992
EQINC	0.001	0.000	3.803	0.001	0.000	3.832	0.001	0.000	3.803	0.001	0.000	3.803

Regression results

	(1)	**(2)**	**(3)**
Variables	**$AVOID_{GETR}$**	**$AVOID_{CETR}$**	**$AVOID_{CUR\_ETR}$**
STR_DEV	0.005 ***	0.004 ***	0.005 ***
	[0.001]	[0.001]	[0.001]
SIZE	−0.008 ***	−0.009 ***	−0.010 ***
	[0.001]	[0.001]	[0.001]
FORINC	−0.013 ***	−0.011 ***	−0.025 ***
	[0.003]	[0.003]	[0.003]
LEV	0.036 ***	0.063 ***	0.076 ***
	[0.010]	[0.014]	[0.011]
MTB	0.002 ***	0.002 ***	0.000
	[0.000]	[0.000]	[0.000]
ROA	−0.106 ***	−0.068 ***	−0.102 ***
	[0.006]	[0.008]	[0.007]
INTAN	0.042 ***	0.053 ***	0.059 ***
	[0.010]	[0.012]	[0.011]
R&D	0.039 ***	0.173 ***	0.044 ***
	[0.015]	[0.024]	[0.014]
CASH	0.149 ***	0.104 ***	0.134 ***
	[0.009]	[0.011]	[0.009]
NOL_D	0.070 ***	0.080 ***	0.096 ***
	[0.004]	[0.004]	[0.004]
ΔNOL	0.031 ***	0.006	0.027 ***
	[0.003]	[0.006]	[0.003]
TANG	0.072 ***	0.136 ***	0.159 ***
	[0.012]	[0.014]	[0.012]
EQINC	1.349 ***	1.473 ***	1.249 ***
	[0.356]	[0.365]	[0.322]
Industry	Yes	Yes	Yes
Year	Yes	Yes	Yes
Constant	−0.456 ***	−0.331 ***	−0.423 ***
	[0.029]	[0.033]	[0.022]

Table 5. *Cont.*

Observations	40,168		30,212		36,719	
Adj. R-squared	0.35		0.20		0.37	
Panel C: Granger causality test						
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
	$AVOID_{GETR}$	**STR_DEV**	**$AVOID_{CASH\_ETR}$**	**STR_DEV**	**$AVOID_{CUR\_ETR}$**	**STR_DEV**
STR_DEV_{t-1}	0.002 ***	0.546 ***	0.001	0.608 ***	0.002 ***	0.535 ***
	[0.001]	[0.019]	[0.001]	[0.026]	[0.001]	[0.021]
STR_DEV_{t-2}	0.001	0.182 ***	0.002 *	0.201 ***	0.001	0.191 ***
	[0.001]	[0.015]	[0.001]	[0.021]	[0.001]	[0.017]
$AVOID_{t-1}$	0.372 ***	0.012	0.279 ***	0.070	0.402 ***	−0.055
	[0.009]	[0.068]	[0.010]	[0.043]	[0.010]	[0.066]
$AVOID_{t-2}$	0.231 ***	−0.004	0.171 ***	−0.003	0.208 ***	−0.014
	[0.008]	[0.059]	[0.009]	[0.042]	[0.009]	[0.059]
SIZE	−0.001 ***	−0.018 ***	−0.001	−0.003	−0.003 ***	−0.017 ***
	[0.000]	[0.004]	[0.001]	[0.004]	[0.001]	[0.004]
FORINC	−0.001	−0.017	0.003	−0.058 ***	−0.005 **	−0.017
	[0.002]	[0.013]	[0.003]	[0.015]	[0.002]	[0.014]
LEV	0.017 ***	0.121 **	0.011	−0.002	0.033 ***	0.096
	[0.005]	[0.055]	[0.008]	[0.061]	[0.005]	[0.060]
MTB	0.000 **	0.022 ***	0.002 ***	0.021 ***	0.000	0.021 ***
	[0.000]	[0.003]	[0.000]	[0.005]	[0.000]	[0.004]
ROA	−0.068 ***	−0.356 ***	−0.051 ***	−0.285 *	−0.058 ***	−0.348 ***
	[0.005]	[0.090]	[0.010]	[0.163]	[0.005]	[0.101]
INTAN	0.019 ***	−0.242 ***	0.039 ***	−0.212 ***	0.022 ***	−0.238 ***
	[0.006]	[0.055]	[0.009]	[0.053]	[0.006]	[0.058]
R&D	0.033 ***	−0.394 **	0.077 ***	−0.458 ***	0.033 ***	−0.341 *
	[0.010]	[0.160]	[0.024]	[0.156]	[0.009]	[0.177]
CASH	0.047 ***	0.020	0.048 ***	−0.013	0.044 ***	0.049
	[0.005]	[0.049]	[0.009]	[0.052]	[0.005]	[0.053]
NOL_D	0.023 ***	0.004	0.026 ***	−0.003	0.031 ***	0.005
	[0.002]	[0.013]	[0.003]	[0.016]	[0.002]	[0.015]
ΔNOL	0.008 **	0.075	0.000	−0.061	0.008 ***	0.070
	[0.003]	[0.060]	[0.008]	[0.108]	[0.003]	[0.065]
TANG	0.030 ***	−0.245 ***	0.070 ***	−0.130 ***	0.060 ***	−0.204 ***
	[0.006]	[0.059]	[0.010]	[0.050]	[0.007]	[0.063]
EQINC	0.799 ***	1.849	0.726 ***	3.594 *	0.715 ***	0.716
	[0.170]	[1.722]	[0.268]	[2.093]	[0.196]	[1.590]
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−0.126 ***	0.812 ***	−0.208 ***	0.565 ***	−0.135 ***	0.811 ***
	[0.015]	[0.180]	[0.019]	[0.084]	[0.015]	[0.168]
Observations	29,029	29,029	19,995	19,995	24,618	24,618
Adj. R2	0.52	0.61	0.32	0.37	0.55	0.62
	The coefficients on STR_DEV_{t-1} and STR_DEV_{t-2} are jointly indifferent from zero **F = 24.14, $p < 0.01$**	The coefficients on $GETR_{t-1}$ and $GETR_{t-2}$ are jointly indifferent from zero F = 0.02, $p = 0.88$	The coefficients on STR_DEV_{t-1} and STR_DEV_{t-2} are jointly indifferent from zero **F = 10.62, $p < 0.01$**	The coefficients on $CASH\_ETR_{t-1}$ and $CASH\_ETR_{t-2}$ are jointly indifferent from zero F = 1.81, $p = 0.18$	The coefficients on STR_DEV_{t-1} and STR_DEV_{t-2} are jointly indifferent from zero **F = 14.69, $p < 0.01$**	The coefficients on CUR_ETR_{t-1} and CUR_ETR_{t-2} are jointly indifferent from zero F = 1.77, $p = 0.18$
Panel D: 2SLS test						
	1st stage			**2nd_stage**		
Variables	**DV = STR_DEV**			**DV = $AVOID_{GETR}$**		
STR_DEV_IND	0.631 ***			-		
	[0.019]					
STR_DEV	-			0.006 **		
				[0.003]		
SIZE	−0.083 ***			−0.007 ***		
	[0.005]			[0.001]		
FORINC	−0.074 ***			−0.013 ***		
	[0.018]			[0.002]		
LEV	0.451 ***			0.036 ***		
	[0.050]			[0.005]		
MTB	0.059 ***			0.002 ***		
	[0.002]			[0.000]		
ROA	−1.194 ***			−0.106 ***		
	[0.047]			[0.006]		
INTAN	−0.328 ***			0.049 ***		
	[0.058]			[0.006]		
R&D	−1.169 ***			0.064 ***		
	[0.097]			[0.010]		
CASH	0.505 ***			0.154 ***		
	[0.049]			[0.005]		
NOL_D	0.119 ***			0.069 ***		
	[0.017]			[0.002]		
ΔNOL	0.273 ***			0.030 ***		
	[0.030]			[0.003]		

Table 5. *Cont.*

TANG	−0.546 ***	0.075 ***
	[0.056]	[0.006]
EQINC	7.118 ***	1.178 ***
	[1.813]	[0.179]
Industry effects	Yes	Yes
Year effects	Yes	Yes
Constant	2.828 ***	−0.463 ***
	[0.164]	[0.020]
Observations	40,142	40,142
Adj R^2	-	0.34
Kleibergen–Paap rk LM statistic: *p*-value	0.000	
Weak identification test:		
Cragg–Donald Wald F-stat.	1094.47	
Stock–Yogo critical value	16.38	

Note: This table presents endogeneity test results. Panel A shows fixed-effect estimates. Panel B shows entropy-balancing test results, where the first panel shows the covariate balancing and the second panel shows the regression estimates where the main model is run using the balanced sample. Panel C shows the Granger causality test. Panel D shows the 2SLS regression estimates. Robust standard errors clustered at the firm level are in parentheses. *, **, and *** denote a two-tailed *p*-value less than 0.10, 0.05 and 0.01, respectively. Variables are defined in Appendix A.

While our study aims to examine whether or not strategic deviation is related to tax avoidance, reverse causality may be a concern. In other words, it could be that tax avoidance might affect a firm's strategic deviation choices. Following Ye et al. (2021), we use Granger lead–lag tests to assess the robustness of our initial empirical estimates by ruling out any potential reverse causality concern. We estimate the following models to conduct the Granger causality tests (Granger 1969):

$$AVOID_{i,t} = \beta_0 + \beta_1 STR\_DEV_{i,t-1} + \beta_2 STR\_DEV_{i,t-2} + \beta_3 AVOID_{i,t-1} + \beta_4 AVOID_{i,t-2} + Control\ variables + \sum indutry\ effects + \sum year\ effects + \varepsilon_{i,t} \quad (2a)$$

$$STRDEV_{i,t} = \gamma_0 + \gamma_1 STR\_DEV_{i,t-1} + \gamma_2 STR\_DEV_{i,t-2} + \gamma_3 AVOID_{i,t-1} + \gamma_4 AVOID_{i,t-2} + Control\ variables + \sum indutry\ effects + \sum year\ effects + \varepsilon_{i,t} \quad (2b)$$

Equation (2a) examines whether or not *lagged* strategic deviation affects *future* tax avoidance after including *lagged* tax avoidance. A jointly significant positive $\beta_1 + \beta_2$ value would imply that strategic deviation affects tax avoidance. Equation (2b) examines whether or not *lagged* tax avoidance influences *future* strategic deviation after including *lagged* strategic deviation. A jointly significant $\gamma_3 + \gamma_4$ value would imply that tax avoidance affects strategic deviation. In Table 5, Panel C, we report the results of the Granger-causality test. As shown in Columns (2), (4), and (6), we do not find evidence of Granger causality from any of the tax avoidance measures for strategic deviation, as indicated by an insignificant $\gamma_3 + \gamma_4$ value. However, as shown at the bottom of Columns (1), (3), and (5), the sum of the coefficients on STR_DEV_{t-1}, and STR_DEV_{t-2} are significant (the F-statistics are 24.14 ($p < 0.01$) for $AVOID_{GETR}$; 10.62 ($p < 0.01$) for $AVOID_{CASH\_ETR}$; and 14.69 ($p < 0.01$) for $AVOID_{CUR\_ETR}$, respectively). These results suggest that strategic deviation Granger causes tax avoidance and not vice versa.

Finally, we address omitted variable bias using 2SLS estimates and present the results in Panel D of Table 5. We use the STR_DEV_IND, the median of the STR_DEV based on the two-digit SIC industry in each year excluding the focal firm, as our instrument. We expect this to be highly correlated with the STR_DEV because firms are likely to adopt strategies similar to those in the industry (Pool et al. 2015), but it is unlikely to directly affect the dependent variable, i.e., AVOID. Table 5, Panel D, Column 1, shows that the coefficient on STR_DEV_IND is positive and highly significant ($\beta = 0.631$, $p < 0.01$), thereby confirming the validity of the chosen instrument. As shown in Column 2, we find a statistically significant positive association between STR_DEV_Pred and $AVOID_{GETR}$ ($\beta = 0.006$, $p < 0.05$). The 2SLS model generated a partial F-test value of 310.30, which is significant at the 1% level. The LM statistic suggests that the instrument is "relevant." The Cragg–Donald F-statistic of

1094.47 is higher than the Stock and Yogo (2005) critical value of 16.38, implying that our instrument does not suffer from weak identification.

Based on these endogeneity tests above, we conclude that our results are not affected by endogeneity concerns.

4.4. Strategic Deviation and Tax Avoidance: Cross-Sectional Tests

Table 6 presents the cross-sectional test results for the association between strategic deviation and tax avoidance. As explained in Section 2, we consider financial constraints, institutional ownership, product market competition, and APTS the four variables that are likely to moderate the relationship between strategic deviation and tax avoidance. We use the binary specification of the moderating variables for ease of interpretation.

We report the test results for the $AVOID_{GETR}$ measure. Column 1 presents the regression estimates for the moderating effect of financial constraints (FC). We use the SA_index developed by Hadlock and Pierce (2010) as our proxy for financial constraints. We create a dummy variable, SA, coded one for *higher* than the median SA_index (financially constrained group), and zero otherwise.[6] The coefficient on SA is positive and significant, suggesting that financially constrained firms avoid tax, which is consistent with prior research. Our main variable of interest is the sign and significance on the interactive variable STR_DEV*SA. The coefficient is positive and significant (coefficient $\beta = 0.008$, $p < 0.01$), implying that deviant firms increase tax avoidance with an increase in financial constraints, thereby supporting H2. Column (2) reports the regression result for the moderating effects of institutional ownership. H3 predicts that deviant firms suffer from information asymmetry and are likely to avoid strict external monitoring compared with other industry peers. Therefore, it is likely that deviant firms have lower institutional ownership, which reduces external monitoring and provides opportunities for tax avoidance. To test this empirically, we create a dummy variable, IOWN, coded one for firm year observations with *below* median institutional ownership, and zero otherwise.[7] We expect the coefficient on the interactive variable STR_DEV*IOWN to be positive and significant for H3 to hold. Column (2) shows the coefficient is indeed positive and significant (coefficient $\beta = 0.005$, $p < 0.01$), thereby supporting H3.

Then, we examine the moderating effect of product market competition on the association between strategic deviation and tax avoidance. We proxy product market competition using the fluidity measure (FLUID) developed by Hoberg et al. (2014). The data are sourced from the Hoberg-Phillips Data Library.[8] We create a dummy variable, FLUID, coded one for a *higher*-than-median FLUID score (high product market competition sample), and zero otherwise.[9] Column (3) shows the coefficient on FLUID to be positive and significant (coefficient $\beta = 0.011$, $p < 0.01$), suggesting that firms operating in highly competitive markets avoid tax more than firms operating in concentrated industries. Importantly, the coefficient on the interactive variable STR_DEV*FLUID is positive and marginally significant (coefficient $\beta = 0.002$, $p < 0.10$), implying that deviant firms operating in more competitive industries engage in more tax avoidance activities, probably to buffer against risks emanating from strategic deviation-induced information asymmetry and escalated uncertainties.

Finally, Column (4) reports the regression result for the moderating effect of APTS on the association between strategic deviation and tax avoidance. We create a dummy variable, APTS, coded one if tax fees/total fees are greater than the median, and zero otherwise.[10] Regression results show that the coefficient on the standalone variable APTS is negative and marginally significant, implying that tax services provided by incumbent auditors are negatively associated with tax avoidance in our sample, thus supporting the knowledge spillover hypothesis. However, the coefficient on the interactive variable STR_DEV*APTS is positive and marginally significant (coefficient $\beta = 0.013$, $p < 0.10$), suggesting that by procuring greater tax services from the incumbent auditors, the deviant firms can take advantage of auditor expertise in tax planning, which can help legitimise tax avoidance.

Table 6. Cross-sectional analyses.

	(1)	(2)	(3)	(4)
Variables	**$AVOID_{GETR}$**	**$AVOID_{GETR}$**	**$AVOID_{GETR}$**	**$AVOID_{GETR}$**
STR_DEV	0.001	0.001	0.002	0.000
	[0.001]	[0.001]	[0.001]	[0.001]
SA	0.009 *			
	[0.005]			
STR_DEV*SA	0.008 ***			
	[0.002]			
IOWN		0.011 **		
		[0.005]		
STR_DEV*IOWN		0.005 ***		
		[0.002]		
FLUID			0.011 ***	
			[0.004]	
STR_DEV*FLUID			0.002 *	
			[0.001]	
APTS				−0.038 *
				[0.020]
STR_DEV*APTS				0.013 *
				[0.008]
SIZE	−0.001	0.001	−0.007 ***	−0.002 *
	[0.001]	[0.001]	[0.001]	[0.001]
FORINC	−0.004	−0.006 *	−0.004	−0.014 ***
	[0.003]	[0.003]	[0.003]	[0.004]
LEV	0.025 ***	0.020 *	0.042 ***	0.038 ***
	[0.009]	[0.011]	[0.009]	[0.012]
MTB	0.003 ***	0.002 ***	0.002 ***	0.001 ***
	[0.000]	[0.000]	[0.000]	[0.000]
ROA	−0.195 ***	−0.149 ***	−0.116 ***	−0.102 ***
	[0.013]	[0.013]	[0.007]	[0.010]
INTAN	0.017	0.040 ***	0.014	0.033 **
	[0.011]	[0.012]	[0.009]	[0.014]
R&D	0.224 ***	0.177 ***	0.082 ***	0.036
	[0.029]	[0.025]	[0.015]	[0.025]
CASH	0.101 ***	0.131 ***	0.132 ***	0.135 ***
	[0.010]	[0.011]	[0.008]	[0.014]
NOL_D	0.055 ***	0.052 ***	0.065 ***	0.041 ***
	[0.003]	[0.004]	[0.003]	[0.004]
ΔNOL	0.053 ***	0.037 ***	0.033 ***	0.032 ***
	[0.009]	[0.008]	[0.003]	[0.005]
TANG	0.062 ***	0.067 ***	0.061 ***	0.038 **
	[0.012]	[0.014]	[0.010]	[0.019]
EQINC	1.347 ***	1.225 ***	1.147 ***	0.947 **
	[0.301]	[0.349]	[0.309]	[0.413]
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Constant	−0.468 ***	−0.476 ***	−0.355 ***	−0.335 ***
	[0.030]	[0.032]	[0.008]	[0.042]
Observations	30,938	21,731	31,870	14,094
Adjusted R2	0.19	0.24	0.33	0.31

Note: This table presents the cross-sectional test results. SA is a dummy variable coded 1 if the SA index is *above* median and 0 otherwise. IOWN is a dummy variable coded 1 for firm year observations with *below*-median institutional ownership, and 0 otherwise. FLUID is a dummy variable coded 1 for a *higher*-than-median FLUID score (a high-product-market-competition sample) and 0 otherwise. APTS is a dummy variable coded 1 if tax fees/total fees are *greater* than the median, and 0 otherwise. Robust standard errors clustered at the firm level are in parentheses. *, **, and *** denote a two-tailed *p*-value less than 0.10, 0.05 and 0.01, respectively. Variables are defined in Appendix A.

4.5. Robustness Tests

In our first robustness test, we develop two alternative tax avoidance measures, CASH_RATIO and CETR_LONG. CASH_RATIO is computed as the cash taxes paid divided by the pre-tax operating cash flows adjusted for extraordinary items and discontinued operations. CETR_LONG mitigates the concern with the mismatch problem associated with the CETR (Dyreng et al. 2008). The CETR_LONG is calculated as the sum of cash taxes paid over five years (t to $t-4$) scaled by the sum of pre-tax income adjusted for special items, during the same period. Table 7 shows that the coefficient on STR_DEV is positive and significant ($\beta = 0.002$, $p < 0.05$) for $AVOID_{CASH\_RATIO}$ (Column 1) and for $AVOID_{CETR\_LONG}$ ($\beta = 0.002$, $p < 0.05$) (Column 2). Then, we use an alternative measure of strategic deviation (STR_DEV_ALT), re-estimate our baseline model, and report the result in Column 3 in Table 7. We follow prior research (Dong et al. 2021; Finkelstein and Hambrick 1990) and construct STR_DEV_ALT, excluding R&D intensity and advertising intensity from the STR_DEV measure. The coefficient on STR_DEV_ALT, too, is positive and significant ($\beta = 0.004$, $p < 0.01$).

Table 7. Alternative tax avoidance and strategic deviation measures.

	(1)	(2)	(3)
	$AVOID_{CASH\_RATIO}$	**$AVOID_{CETR\_LONG}$**	**$AVOID_{GETR}$**
STR_DEV	0.002 **	0.002 **	-
	[0.001]	[0.001]	
STR_DEV_ALT	-	-	0.004 ***
			[0.001]
SIZE	−0.004 ***	0.000	−0.008 ***
	[0.001]	[0.001]	[0.001]
FORINC	−0.003	−0.010 ***	−0.014 ***
	[0.003]	[0.002]	[0.003]
LEV	0.085 ***	0.041 ***	0.038 ***
	[0.008]	[0.007]	[0.008]
MTB	−0.000	0.002 ***	0.002 ***
	[0.000]	[0.000]	[0.000]
ROA	−0.139 ***	0.004	−0.096 ***
	[0.010]	[0.013]	[0.006]
INTAN	0.116 ***	0.094 ***	0.040 ***
	[0.010]	[0.007]	[0.010]
R&D	0.148 ***	0.299 ***	0.037 ***
	[0.022]	[0.021]	[0.012]
CASH	0.164 ***	0.130 ***	0.149 ***
	[0.010]	[0.008]	[0.008]
NOL_D	0.073 ***	0.045 ***	0.068 ***
	[0.003]	[0.002]	[0.003]
ΔNOL	−0.022 ***	0.009	0.030 ***
	[0.006]	[0.010]	[0.002]
TANG	0.256 ***	0.182 ***	0.070 ***
	[0.010]	[0.008]	[0.011]
EQINC	0.080	0.726 ***	1.190 ***
	[0.274]	[0.210]	[0.289]
Industry	Yes	Yes	Yes
Year	Yes	Yes	Yes
Constant	−0.427 ***	−0.443 ***	−0.451 ***
	[0.027]	[0.023]	[0.029]
Observations	29,460	21,698	44,126
Adj. R^2	0.25	0.20	0.37

Note: This table presents alternative tax avoidance and strategic deviation measures. Columns 1 and 2 shows regression results for alternative AVOID measures ($AVOID_{CASH\_RATIO}$ and $AVOID_{CETR\_LONG}$, respectively). Column 3 shows when an alternative strategic deviance (STR_DEV_ALT) measure is used. Robust standard errors clustered at the firm level are in parentheses. **, and *** denote a two-tailed p-value less than 0.05 and 0.01, respectively. Variables are defined in Appendix A.

4.6. Strategic Deviation, Tax Avoidance and Firm Value

Finally, we examine whether or not the strategic deviation-induced tax avoidance has implications for firm value. Prior literature suggests that tax avoidance negatively impacts investors' assessment of firm value (Desai and Dharmapala 2009) due to the high agency costs (Crocker and Slemrod 2005) and reduced transparency (Balakrishnan et al. 2019). However, enhanced tax disclosures such as qualitative disclosures in tax foot notes reduce investors' concerns over the agency risk of managers using tax avoidance for their own benefits and thus increase firm valuation (Luo et al. 2023). Ex ante, it is unclear whether or not the cash savings from tax avoidance are used to finance unique strategies that bring a competitive advantage to the deviant firms or used for managerial opportunism triggered by adverse selection and/or moral hazard agency frictions. Prior literature (Carpenter 2000; Litov et al. 2012) suggest that engaging in strategic deviation poses risks of newness. This, coupled with the risk of tax avoidance (see Hanlon et al. 2014), makes strategically deviant firms who avoid tax face a high risk of compromising firm value. Therefore, we empirically test if tax avoidance by deviant firms creates or destroys firm value. We use the following regression to test this proposition:

$$VALUE_{i,t+1} = \beta_0 + \beta_1 STR\_DEV_{i,t} + \beta_2 AVOID_{i,t} + \beta_3 STR\_DEV * AVOID_{i,t} + \sum_i \lambda_i CONTROLS_{i,t} + \sum_j \lambda_j INDUSTRY_{j,t} + \sum_k \lambda_k YEAR_{k,t} + \varepsilon_{i,t} \quad (3)$$

where VALUE is the firm value proxied by TOBINQ. Other control variables include the market value of equity (MVE), standard deviation of returns (SDRET), leverage (LEV), market to book ratio (MTB), return on assets (ROA), intangibles (INTAN), and capital expenditure (CAPX). We expect the coefficient β_3 to be negative and significant if the capital market discounts the tax avoidance undertaken by the strategically deviant firms. We present the regression results in Table 8. As shown in Columns (2) and (4), we find the coefficients on the interactive variable STR_DEV*AVOID to be negative and significant for both $AVOID_{GETR}$ (coefficient −0.123, $p < 0.10$) and $AVOID_{CASH\_RATIO}$ ($\beta = -0.091$, $p < 0.10$), suggesting that the capital market discounts tax avoidance strategies undertaken by deviant firms.

Table 8. Strategic deviation, tax avoidance, and firm value.

DV = TobinQ$_{t+1}$	**(1)**	**(2)**	**(3)**	**(4)**
	$AVOID_{GETR}$	**$AVOID_{GETR}$**	**$AVOID_{CASH\_RATIO}$**	**$AVOID_{CASH\_RATIO}$**
STR_DEV	−0.047 ***	−0.085 ***	−0.062 ***	−0.079 ***
	[0.009]	[0.021]	[0.011]	[0.015]
AVOID	0.394 ***	0.363 ***	0.187 ***	0.378 ***
	[0.050]	[0.135]	[0.052]	[0.113]
STR_DEV*AVOID	-	−0.123 *	-	−0.091 *
		[0.064]		[0.049]
MVE	0.065 ***	0.093 ***	0.068 ***	0.068 ***
	[0.007]	[0.013]	[0.007]	[0.007]
SDRET	0.966 ***	0.543 ***	1.474 ***	1.471 ***
	[0.155]	[0.208]	[0.194]	[0.194]
LEV	−2.221 ***	−2.344 ***	−2.150 ***	−2.146 ***
	[0.080]	[0.084]	[0.086]	[0.085]
MTB	0.241 ***	0.206 ***	0.228 ***	0.229 ***
	[0.009]	[0.007]	[0.010]	[0.010]
ROA	−0.752 ***	−0.211 ***	0.172	0.163
	[0.134]	[0.044]	[0.217]	[0.217]
INTAN	−0.114	−0.359 ***	−0.145 **	−0.144 **
	[0.082]	[0.073]	[0.063]	[0.063]
CAPX	0.403 ***	0.355 *	0.318 **	0.321 **
	[0.143]	[0.203]	[0.161]	[0.160]

Table 8. *Cont.*

DV = TobinQ$_{t+1}$	**(1)**	**(2)**	**(3)**	**(4)**
	AVOID$_{GETR}$	**AVOID$_{GETR}$**	**AVOID$_{CASH_RATIO}$**	**AVOID$_{CASH_RATIO}$**
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Constant	1.661 ***	1.717 ***	1.534 ***	1.565 ***
	[0.303]	[0.163]	[0.243]	[0.242]
Observations	43,238	43,238	33,567	33,567
Adj. R^2	0.41	0.43	0.40	0.40

Note: This table shows the association between tax avoidance and firm value for deviant firms. The dependent variable is firm value, measured using TobinQ. TobinQ is book value of assets plus market value of equity minus book value of equity minus deferred tax, scaled by the book value of assets (AT + (CSHO × PRCC_F) − CEQ − TXDB])/AT]. Columns 1 and 3 do not include the interactive variable STR_DEV*AVOID whereas columns (2) and (4) do. Tax avoidance is measured using AVOID$_{GETR}$ and AVOID$_{CASH_RATIO}$ measures. Robust standard errors clustered at firm-level are in parentheses. *, **, *** denote a two-tailed *p*-value of less than 0.10, 0.05 and 0.01, respectively. Variables are defined in Appendix A.

5. Conclusions

We explore the association between strategic deviation and tax avoidance. It is important to understand the consequences of deviating from peer firms within the industry. At the same time, it is important to know the determinants of tax avoidance. It is also important to understand whether or not strategically deviant firms engaging in tax avoidance reduce firm value. Combining agency perspective and risk view, we argue that firms deviating from industry norms engage in tax avoidance. Using a sample of US data, we find support for this assertion. Then, we examine the moderating effects of financial constraints, institutional ownership, product market competition, and auditor-provided tax services. Our findings suggest that the positive association between strategic deviation and tax avoidance is pronounced for firms with high financial constraints, low institutional ownership, high product market competition, and high auditor-provided tax services. Our findings support the assertion that strategic-deviant firms that engage in tax avoidance compromise firm value. Our results remain robust in terms of possible endogeneity concerns. Our results contribute to both the strategic management and the tax avoidance literature. Although there are several studies that examine the determinants of tax avoidance, there is no evidence on the association between deviant strategies and tax avoidance. Thus, we fill this gap in the literature. While we took steps to address empirical bias and conceptual limitations through a robust research design and a nuanced theoretical debate, we acknowledge that the study could have some limitations, as highlighted by Belnap et al. (2023).[11]

Deviant business strategies carry implications for risks and uncertainties. Such strategies, aimed at pursuing new products and markets, expose firms to a heightened risk of negative reactions from investors due to their deviation from norms. Prior research, including that of Hanlon et al. (2014), has underscored the risks associated with adopting deviant strategies. In contrast, conformity brings about homogeneity and is preferred by capital market participants due to the low information processing costs and low uncertainty (DiMaggio and Powell 1983) associated with it. Pursing different strategies has mixed implications. Navissi et al. (2017) find that sub-optimal investments resulting from different strategic choices unfavourably affect future performance while Dong et al. (2021) find that the capital market discounts the value of cash holdings of firms following non-conforming strategies. Our study advances this area of research by presenting evidence regarding whether or not firms that deviate from standard industry practices engage in tax avoidance, and if so, how such behaviour impacts their market value.

The findings of our paper could inform policy development, especially in areas related to corporate taxation and ethical business practices. Regulators might consider watching the space in relation to how firms try to avoid taxation by engaging in strategic deviation. It is interesting for managers to understand the rationale for selecting a particular strat-

egy orientation. Despite the negative consequences, managers might still follow deviant strategies when the costs of deviating from industry peers is lower than the benefits of conforming with industry norms. These insights contribute to a broader discussion around ethical business practices and securing legitimacy and corporate reputation.

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Appendix A. Variable Definitions

Dependent variables	GETR	Total tax expense (TXT) divided by pre-tax book (PI) income less special items (SI). We truncate GETR to the range (0, 1). For ease of interpretation, we multiply GETR by −1 and use the transformed variables ($AVOID_{GETR}$) in the correlation and regression analysis.
	CETR	Cash effective tax rate, measured as cash income taxes paid (TXPD), divided by pre-tax book income (PI) less special items (SPI). We truncate CETR to the range (0, 1). For ease of interpretation, we multiply CETR by −1 and use the transformed variables ($AVOID_{CETR}$) in the correlation and regression analysis.
	CUR_ETR	Current effective tax rate measured as total income tax expense (TXT) less deferred tax expense (TXDI) divided by pre-tax book income (PI) less special items (SPI). We restrict CUR_ETR to fall in the interval (0, 1). For ease of interpretation, we multiply CUR_ETR by −1 and use the transformed variables ($AVOID_{CUR\_ETR}$) in the correlation and regression analysis.
	CASH_RATIO	Cash ratio, measured as income taxes paid scaled by sum of net operating cash flow, income taxes paid minus extraordinary items and discontinued operations. We multiply CASH_RATIO by −1 and use the transformed variable ($AVOID_{CASH\_RATIO}$).
	CETR_LONG	Long-run CASH ETR (CETR_LONG), measured as the sum of cash taxes paid over five years scaled by sum of pre-tax income less special items over the five years period. We multiply CETR_LONG by −1 and use the transformed variable ($AVOID_{CETR\_LONG}$).
Independent variable	STR_DEV	Strategic deviation, measured as the extent to which a firm's strategy deviates from industry average. See Section 3.2.1. for detailed estimation procedure.
Control variables	SIZE	Natural log of the total assets (AT) of the firm at the beginning of year.
	FOR_INC	A dummy variable that takes a value of 1 if a firm has foreign income in a given year (PIFO > 0), 0 otherwise.
	LEV	Leverage, measured as long-term debt (DLTT) divided by lagged total assets (AT).
	MTB	Market-to-book ratio at the beginning of year, measured as market value of assets divided by book value of assets.
	ROA	Profitability of the firm measured as operating income before depreciation divided by lagged total assets.
	INTAN	Intangible assets (INTAN) divided by lagged assets (AT).
	R&D	Research and development, measured as research and development expenses (RD) divided by lagged assets (AT). Missing values are set to zero.

	CASH	Cash holding, defined as cash and marketable securities (CHE) divided by lagged total assets (AT).
	NOL_D	A dummy variable, coded as 1 if the loss carry forward is positive at the beginning of the year t, and 0 otherwise.
	ΔNOL	Change in loss carry forward divided by lagged total assets.
	TANG	Property, plant, and equipment (PPE) divided by lagged total assets (AT).
	EQUITY_INC	Equity income in earnings (ESUB) divided by lagged total assets (AT).
Cross-sectional variables	FC_SA	FC_SA (Hadlock and Pierce 2010) is derived using the formula: $-0.737 \times$ SIZE + 0.043 $\times$ SIZE^2 $-$ 0.040 $\times$ AGE; where SIZE is the natural log of book assets (in millions) and AGE is measured as the number of years since the firm was first covered by the Center for Research in Securities Prices (CRSP).
	FLUID	Product market threat proxied by the Fluidity score obtained from Hoberg-Phillips Data Library (Hoberg et al. 2014).
	IOWN	Percentage of common shares held by institutional investors retrieved from Thomson Reuter's F13 File.
	APTS	Auditor provided tax services, measured as tax fees/Total fees. Tax fee data only became available since 2001. We dropped APTS==0 because we are interested in finding whether deviant firms procuring tax services from incumbent auditors are more or less likely to avoid tax.

Notes

1 Many other tax avoidance-related costs include, but not limited to, increases in the cost of bank loans (Hasan et al. 2014; Isin 2018), lower corporate transparency (Balakrishnan et al. 2019; Frank et al. 2009; Hanlon 2005), increases in stock price crash risk (Kim et al. 2011), insider trading profitability (Chung et al. 2019) and investment inefficiency (Khurana et al. 2018).

2 However, Ye et al. (2021) find that firms pursuing a deviant strategy have more firm-specific information impounded into their stock prices and hence such firms have less synchronous stock price movement. This occurs because strategically deviant firms issue more managerial earnings forecasts and have a higher level of block ownership than the non-deviant firms.

3 Bayar et al. (2018), however, find that tax avoidance is a less useful source of financing for constrained firms.

4 In addition, the disciplinary perspective and cost efficiency explain why product market competition increases the efficiency of tax planning, and thus may reduce tax avoidance. In line with the disciplinary argument, product market competition acts as an external governance mechanism to monitor management behaviour. This, in turn, reduces managers' opportunistic tax avoidance behaviour. In supporting this claim, Desai et al. (2007) find that with a strong corporate governance system, an increase in tax rates leads to an increase in tax revenue. Furthermore, when the competition is high, managers try to be cost-efficient and, as a result, tend to manage taxes efficiently. Supporting this assertion, Wang (2019) finds that firms operating in a competitive environment exhibit greater efficiency in managing taxes.

5 We replace missing R&D and advertising expenses with zero consistent with prior research.

6 In an unreported *t*-test, we find that deviant firms have higher SA_Index (mean = -2.97) compared to their less-deviant counterparts (mean = -3.11) (the difference is statically significant at $p < 0.01$) suggesting that deviant firms are financially more constrained than their less deviant counterparts. We also regress SA_Index on STR_DEV and other control variables and find the coefficient on STR_DEV positive and significant (coefficient 0.013, $p < 0.01$) (untabulated).

7 We performed a *t*-test to compare the difference in mean IOWN between high and low strategic deviation groups. Untabulated result shows a significant difference in mean IOWN between more deviant group (mean IOWN of 40%) vs. less deviant group (mean IOWN of 45%) (the difference is significant at $p < 0.01$), providing univariate support that strategically deviant firms are subject to less external monitoring.

8 See http://hobergphillips.tuck.dartmouth.edu/ (accessed on 22 November 2022).

9 Unreported *t*-test shows that firms pursuing deviant strategies operate in a low competitive market (mean FLUID value of 6.53) than their less-deviant counterparts (mean FLUID value of 7.07) with the difference being significant at $p < 0.01$.

10 We drop observations with APTS = 0 because firms with APTS = 0 in the Audit Analytics may have no tax services purchased from any sources or may have procured tax services from other sources than their incumbent auditors. Our unreported *t*-test result shows that deviant firms procure marginally less APTS than their non-deviant counterparts (mean APTS of 0.07 vs. 0.08) (difference in mean, however, is significant t = 9.17, $p < 0.01$).

[11] Belnap et al. (2023) in their review paper suggest that the explanatory power of agency cost proxies is lower than that of operational proxies in explaining the variances of tax avoidance. They also highlight some concerns around measurements of tax avoidance widely used in the prior literature.

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