

THE EFFECT OF CORPORATE GOVERNANCE ON THE RELATION BETWEEN TAXES AND CREDIT RATINGS

Lisa Eiler, School of Business Administration, University of Montana, 32 Campus Drive, Missoula, MT 59812, 406-243-4968, lisa.eiler@umontana.edu

Jennifer Howard, College of Business Administration, California State University Long Beach, 1250 Bellflower Boulevard, Long Beach, California 90840, 562-985-5042, jennifer.howard@csulb.edu

ABSTRACT

In this study, we examine how corporate governance affects the relation between tax volatility and credit ratings. Tax volatility reflects uncertainty in future tax-related cash flows. After confirming that tax volatility is associated with lower subsequent credit ratings, we find that the negative relation between tax volatility and credit ratings is mitigated by strong corporate governance. We also examine the effect of tax avoidance on the relation between tax volatility and credit ratings, and find that the negative relation is mitigated by greater tax savings, but only in the presence of strong corporate governance. Our results contribute to our understanding of the interplay between tax volatility and tax avoidance by documenting that tax volatility in the absence of strong corporate governance is associated with lower future credit ratings, regardless of potential cash tax savings.

INTRODUCTION

In this study, we examine how credit ratings are affected by the volatility of cash flows stemming from taxes and the mediating role of corporate governance. A firm's creditworthiness is largely determined by its ability to service its debt, which in part depends on the mean and variance of a firm's future cash flows. Although tax savings improve a firm's cash flows and ability to service debt, complex tax avoidance activities may also mask earnings manipulation and diversion of corporate resources [5]. Additionally, complex tax avoidance activities can also introduce uncertainty in future cash flows and contribute to firm risk. Furthermore, prior research has shown that corporate governance can mitigate the agency problems associated with tax avoidance activities Desai and Dharmapala [4].

Guenther, Matsunaga, and Williams [10] find a positive association between tax volatility and firm risk which suggests an association between tax volatility and the uncertainty of future tax-related cash flows. When a company takes risky or uncertain tax positions, it faces the increased likelihood that such positions will be challenged by taxing authorities. Successful challenges result in unexpected cash outflows through additional taxes, interest and penalties and such outflows can result in a more volatile cash effective tax rate. Since prior research suggests that tax volatility is associated with higher loan spreads [13], we expect rating agencies will assign a higher risk assessment to a firm with highly volatile tax payments. Our first test confirms the intuitive, yet previously undocumented result that tax volatility is associated with lower future (one-year ahead) credit ratings. Higher variance of future cash outflows implies a greater risk of not being able to meet debt service obligations in a future period, and as a result, we observe that tax volatility is negatively associated with future credit ratings.

Although this initial result is intuitive and not documented in prior research, our primary interest lies in whether this relation varies with corporate governance. Corporate governance that enhances monitoring should mitigate agency risk and improve a firm's creditworthiness [2]. On the other hand, governance mechanisms that align managerial and shareholder incentives may result in wealth transfer from bondholders to shareholders, which may negatively impact credit ratings. Consistent with these

arguments, Ashbaugh-Skaife, Collins, and LaFond [1] finds that stronger shareholder rights are associated with lower credit ratings, but also that monitoring mechanisms are associated with better credit ratings. To investigate the role of corporate governance on the relation between tax volatility and credit ratings, we partition our sample based on institutional ownership and test the above hypotheses using the two subsamples. Our results indicate that the penalty associated with higher levels of tax volatility is not present in firms with strong governance. Rather, it is primarily firms with weak corporate governance that are penalized in the debt market for increased uncertainty in future cash flows through tax volatility.

Last, we examine how the level of tax avoidance affects the relation between tax volatility, corporate governance, and credit ratings. A lower tax burden should improve cash flows, increasing a firm's ability to service debt and reducing default risk. Put another way, tax savings generated from tax avoidance can be viewed as a source of cash inflows. Consistent with this view of tax avoidance, Edwards, Schwab, and Shevlin [8] find that financially constrained firms rely more on cash tax savings, proxied by cash effective tax rate (cash ETR), as a source of financing. On the other hand, risky tax avoidance strategies can also worsen a firm's credit risk by inducing uncertainty in future cash flows, particularly if a tax position is challenged by a taxing authority. Furthermore, tax avoidance has also been linked to agency risk, such as the risk of managerial rent diversion [3] and the risk that managers will withhold information [12]. However, Desai and Dharmapala [4] suggest that monitoring by institutional investors mitigates the deleterious effect of tax avoidance, allowing it to have a positive effect on firm value. Thus, in the presence of strong corporate governance, cash tax savings may improve credit ratings for all levels of tax risk. Taken together, it is not clear how cash savings generated by tax avoidance activities will affect the relation between tax volatility, corporate governance, and credit ratings.

To investigate how tax avoidance affects the relation between tax volatility and credit ratings, we interact our tax volatility measure with a low cash ETR indicator variable (i.e., lowest quartile by year). Again, we partition the sample based on our proxy for corporate governance. Among high institutional ownership firms, we find that only low tax avoidance (i.e., high cash ETR) firms' credit ratings are negatively affected by tax volatility. The negative effect of tax volatility is mitigated by cash tax savings, but only among firms with strong corporate governance. For low corporate governance firms, attempts to produce additional cash flows from tax avoidance do not appear to reduce the negative effect of tax volatility. In other words, our evidence suggests that in the presence of weak corporate governance, the penalty of lower future credit ratings for firms with greater tax volatility is not offset by cash tax savings generated through tax avoidance as is the case with strong governance firms.

Our research makes several contributions. This study adds to our understanding of the economic consequences of tax avoidance, namely, the uncertainty of future tax payments and the role of corporate governance. Credit ratings are an important factor in allocating risk and capital in the economy, and we document that tax-related cash flow risk is associated with lower subsequent ratings, after controlling for operating cash flow volatility. Furthermore, our evidence suggests that creditors can also benefit from institutional ownership oversight that constrains management from using tax avoidance to for self-serving purposes.

RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

Unexpected tax-related cash outflows can introduce volatility into the cash effective tax rate. When a tax position is risky or uncertain, it is more likely to be successfully challenged by taxing authorities, which would result in unexpected cash outflows in the form of additional taxes, interest and penalties. Guenther et al. [10] find that tax volatility is positively associated with firm risk. Their finding implies that tax volatility is associated with the uncertainty of future tax-related cash flows. Other concurrent research also finds that tax volatility is associated with higher loan spreads [13], lower firm value [6], and higher cost

of equity [11]. Thus, we expect rating agencies will assign a higher risk assessment to a firm with highly volatile tax payments. Therefore, our first hypothesis, stated in alternative form, is:

H1: Tax volatility and future credit ratings are inversely related.

Corporate governance can provide oversight of managers to ensure the tax positions taken carry lower risk and lower uncertainty, for example, by reducing the likelihood that managers invest in tax positions with risky payoffs. If institutional investors indeed engage in monitoring that constrains self-interested managers and reduces agency risk, we should observe a weaker relation between tax volatility and credit ratings. However, if institutional investors do not actively monitor and this corporate governance mechanism favors shareholders at the expense of creditors (i.e., the wealth transfer hypothesis dominates), then the opposite may occur, resulting in lower credit ratings. The above arguments lead us to our second hypothesis (stated in null form):

H2: Corporate governance has no effect on the relation between tax volatility and future credit ratings.

Higher levels of tax avoidance should result in more tax savings, improving cash flows, and in turn reducing credit risk. Consistent with tax avoidance having a positive effect on cash flows, prior research has shown that cash tax planning is used as a source of financing for financially constrained firms [8] and that tax avoidance is associated a lower cost of equity [9]. Drake et al. [6] find that firm value is negatively (positively) related to tax risk (tax avoidance) and further find that the positive effect of tax avoidance on firm value becomes weaker in the presence of tax risk. Nevertheless, higher levels of tax avoidance may involve riskier tax strategies, inducing volatility in future tax payments. Dyreng, Hanlon, and Maydew [7] suggest that firms must resort to increasingly aggressive and uncertain tax strategies in order to achieve a lower cash effective tax rate. Further, tax avoidance can worsen agency problems that cause managers to shirk and act in their own interest at the expense of minority shareholders and creditors. Consistent with this agency perspective of tax avoidance, Desai and Dharmapala [4] find that tax avoidance increases firm value only for firms that have higher levels of institutional ownership. Therefore, it is unclear how the presence of tax avoidance affects the relation between tax risk and credit ratings. Thus, we state our final hypothesis in null form:

H3: The relation between tax volatility and future credit ratings does not change in the presence of tax avoidance.

RESEARCH DESIGN

To test our first hypothesis, we estimate an ordered logistic regression model with the general form:

$$\Pr(\text{Rating}_{t+1}) = F(\alpha_0 + \alpha_1 \text{TaxVol}_t + \text{Controls}_t) \quad (1)$$

The dependent variable, Rating_{t+1} , is the firm's the Standard & Poor's long-term issuer credit rating in year $t + 1$. We convert the letter-based ratings into a numerical score such that higher values represent better credit ratings, e.g., AAA = 22, AA+ = 21, etc. Following Guenther et al. [10], we calculate tax volatility, TaxVol , as the standard deviation of annual cash effective tax rates from year $t - 4$ to year t . To test H2, our proxy for governance is institutional ownership following Desai and Dharmapala [4]. If a firm's institutional ownership percentage is in the top quartile by year, we consider the firm to have "high" institutional ownership and all other firms fall into the "low" institutional ownership group. Then, we re-estimate the above regression models separately for each subsample. To test H3, we first identify tax avoidance firms as those with a 5-year cash ETR in the lowest quartile by year, LCashETR and interact it with TaxVol as shown in the following ordered logit model:

$$\Pr(\text{Rating}_{t+1}) = F(\beta_0 + \beta_1 \text{TaxVol}_t + \beta_2 \text{LCashETR}_t + \beta_3 \text{TaxVol}_t * \text{LCashETR}_t + \text{Controls}_t) \quad (2)$$

We also estimate equation (2) by high and low institutional ownership. In addition, we control for default risk and other sources of volatility: Long-term debt to assets ratio, *Leverage*, interest coverage ratio, *IntCov*, firm size, *Size*, firm performance, *ROA*, volatility of return on assets, *ROAVol*, volatility of operating cash flows, *CFOVol*, volatility of monthly stock returns, *RetVol*, loss firms, *Loss*, and industry and time fixed effects.

SAMPLE AND UNIVARIATE ANALYSIS

We obtain financial data from Compustat, monthly stock return data from CRSP, and institutional ownership data from Thomson Reuters Institutional 13f Holdings. Our sample begins with 194,319 firm-year observations from Compustat spanning the period 1998-2014. We eliminate the financial and utilities sector, and observations where credit ratings in adjacent years differ by more than seven ratings levels. Our final sample includes 9,634 firm-year observations with non-missing values of our regression variables. The average firm in our sample has a credit rating of BBB or BBB+ (mean $\text{Rating}_{t+1} = 14.139$). The mean (median) tax rate volatility, *TaxVol*, in our sample is 0.115 (0.085). Our sample firms have a mean (median) cash effective tax rate, *CashETR*, of 23.8 (24.1) percent. Institutional investors own, on average, approximately 71 percent of our sample firms' outstanding shares. Tax rate volatility, *TaxVol*, generally stays within a range of 0.092 and 0.130 over the sample period. Consistent with corporations becoming more tax aggressive over time, we find a gradual decline in *CashETR* from 27.6 percent in 1998 to 21.0 percent in 2014. This time series suggests that, on average, firms are becoming better at avoiding taxes using less risky tax strategies. Examination of the mean values of tax variables by credit rating reveals *TaxVol* is inversely related to one-year ahead credit rating with the highest rated firms having the lowest levels of tax uncertainty, consistent with H1. In general, investment grade rated firms (BBB- or above) appear to have higher *CashETR* than speculative grade rated firms (BB+ and below). Institutional ownership appears to be lowest for the highest and lowest rated firms, but for those in between, institutional ownership percentages are in the 60s and 70s.

MAIN RESULTS

Table 1 reports the ordered logistic results from estimating equation (1). In column (1), we find that the coefficient on *TaxVol* (-1.820) is negative and significant (p-value < 0.0001). This result is consistent with the univariate analysis and suggests that uncertainty in future tax payments is associated with a subsequent credit rating downgrade and supports H1. In column (2), for firms with high levels of institutional ownership, we find no statistically significant relation between tax volatility and credit ratings. However, the relation between tax volatility and future credit ratings remains negative and significant (coefficient - 2.178; p-value < 0.0001) when institutional ownership is low (column 3). Thus, it appears that credit analysts view tax volatility as relatively benign among firms that have strong monitoring mechanisms in place, yet penalize firms with tax volatility when weak monitoring mechanisms are in place.

TABLE 1

Ordered Logit Regression Results of the Effect of Tax Volatility and Tax Avoidance on Credit Ratings

Dependent Variable = $Rating_{t+1}$	High <i>InstOwn</i>		Low <i>InstOwn</i>		High <i>InstOwn</i>	Low <i>InstOwn</i>
	(1)	(2)	(3)	(4)	(5)	(6)
<i>TaxVol</i>	-1.820*** (0.0000)	-0.629 (0.3574)	-2.178*** (0.0000)	-2.904*** (0.0000)	-2.163*** (0.0077)	-3.219*** (0.0000)
<i>TaxVol*LCashETR</i>				1.937** (0.0210)	3.210** (0.0240)	1.496 (0.1085)
<i>LCashETR</i>				-0.519*** (0.0000)	-0.754*** (0.0000)	-0.526*** (0.0000)
Wald test: <i>TaxVol+TaxVol*LCashETR</i>				-0.967 (0.2023)	1.047 (0.3872)	-1.723 (0.0443)
Control Variables Included	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	9,634	2,407	7,227	9,634	2,407	7,227
Pseudo R-squared	0.2824	0.2645	0.2889	0.2855	0.2713	0.2917

*, **, *** Denote significance at the 0.10, 0.05, and 0.01 levels, respectively. Mean-centered *TaxVol* is used in all regression models. Intercepts are included but not reported. Test statistics are calculated using robust standard errors clustered by firm, and two-sided *p-values* are reported in parentheses. $Rating_{t+1}$ = S&P long-term debt issuer credit rating (SPLTCRM) in year $t + 1$. *TaxVol* = standard deviation of annual cash effective tax rate for the period from year $t - 4$ to year t . *CashETR* = sum of cash taxes paid (TXPD) from $t - 4$ to $t - 1$ over the sum of pretax income (PI - SPI) from $t - 4$ to $t - 1$. *LCashETR* = indicator variable equal to one if *CashETR* is in lowest quartile in any year. *InstOwn* = shares owned by institutional investors (from Thomson Reuters Institutional 13f Holdings) divided by total shares outstanding (from CRSP). Quarterly institutional holdings are averaged over each firm-year. Control variables are defined as follows: *Leverage* = total debt divided by the sum of total debt and market value of equity (DLC + DLTT)/(DLC + DLTT + PRCC_F*CSHO). *CapInt* = capital intensity, calculated as gross property, plant, and equipment (PPEGT) divided by beginning total assets (AT). *Size* = natural logarithm of total assets (AT). *ROA* = pretax income (PI), scaled by total assets (AT). *IntCov* = natural logarithm of (1 + interest coverage ratio). Interest coverage ratio is computed as operating income before depreciation and interest expense (OIBDP + XINT) divided by interest expense (XINT). *Subord* = indicator variable set to one if firm has subordinated debt (DS), and zero otherwise. *ROAVol* = standard deviation of ROA for the period from year $t - 4$ to year t . *RetVol* = standard deviation of monthly stock returns over year t (from CRSP). *CfoVol* = standard deviation of annual cash flows from operations (OANCF) scaled by beginning total assets (AT) for the period from year $t - 4$ to year t . *Loss* = indicator variable equal to one if net income before extraordinary items (IB) is negative in year t and year $t - 1$.

In Column (4), the coefficient on *TaxVol* is -2.904 and confirms that the relation between tax risk and credit ratings is negative in the low tax avoidance group (p -value < 0.0001). We also find that the relation between tax risk and credit ratings differs for high tax avoidance firms ($TaxVol*LCashETR = 1.937$, p -value = 0.0210). The sum of $TaxVol + TaxVol*LCashETR$ is -0.967 (-2.904 + 1.937) and is not statistically different from zero ($Prob > \chi^2 = 0.2023$). These results suggest that tax avoidance has a negative impact on future credit ratings, unless it generates enough cash tax savings to help offset the additional risk. However, results shown in Column (5) suggest that the positive effect of cash tax savings is primarily driven by firms with high levels of institutional investors. The coefficient on $TaxVol*LCashETR$ is positive and significant (coefficient = 3.210; p -value = 0.0240) and the sum of $TaxVol + TaxVol*LCashETR$ is 1.047 (-2.163 + 3.210) and is not statistically different from zero ($Prob > \chi^2 = 0.3872$). Thus, for firms with strong corporate governance, cash tax savings offsets the negative relation between tax volatility and future credit ratings. In contrast, we do not find that cash tax savings has an offsetting effect when corporate governance is weak. In column (6), the coefficient on *TaxVol* is negative and significant (coefficient = -3.219; p -value < 0.0001), but the interaction term $TaxVol*LCashETR$ is not significant (coefficient = 1.496; p -value = 0.1085). Furthermore, the sum of $TaxVol + TaxVol*LCashETR$

is -1.723 (-3.219 + 1.496) and is statistically significant ($\text{Prob} > \chi^2 = 0.0443$). Taken together, these results suggest that while tax volatility is associated with lower future credit ratings, the presence of strong corporate governance mitigates this effect. In the absence of strong corporate governance mechanisms, cash tax savings through tax avoidance does not offset the negative effect of tax risk on future credit ratings. This is generally consistent with the wealth transfer hypothesis.

CONCLUSION

Our evidence suggests that for firms with weak corporate governance, the penalty associated with higher tax volatility is not offset by cash tax savings generated through tax avoidance. In other words, firms with strong corporate governance are able to offset the penalty in the debt market for incurring tax risk. We also examine the likelihood of receiving an investment grade rating and find similar results. We contribute to the literature involving tax volatility (sometimes referred to as tax risk) and future credit ratings. In particular, we find an intuitive, but previously undocumented negative relation between tax volatility and future credit ratings. We also provide insights into the role of corporate governance has on the relation between tax volatility and future credit ratings. Our results suggest that high levels of institutional ownership can mitigate the negative relation between tax volatility and future credit ratings. In other words, for firms with greater tax volatility, the penalty in the form of lower future credit ratings is concentrated in firms with weak external monitoring mechanisms. Thus, the results of our study provide a preliminary attempt to address the call for research into this area by Wilson [14].

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