

Assessing the role of losses in uncertain tax planning

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Abstract

Prior literature has provided substantial evidence of the determinants of tax planning choices but primarily in the context of profitable firms, often citing a lack of incentives for loss firms to pursue tax planning. To understand the role of losses in uncertain tax planning this article employs an explorative approach that allows for nonlinearities in the distribution between pre-tax profitability and uncertain tax planning. Specifically, the results indicate that uncertain tax choices are not as ac-

not theoretically have as strong a set of incentives as profitable firms, since loss firms cannot always monetize uncertain tax choices immediately (Scholes et al. 2015). On

literature on tax planning. Prior literature has offered significant insight into the tax choices of profitable firms but has often excluded loss firms from analysis (Henry Sansing 2018). Since tax loss attributes comprise an economically significant way that firms avoid paying taxes (Drake et al, 2020; Christensen et al 2022) and because loss firms constitute a substantial portion of the population, it is imperative to understand how firms make uncertain tax choices when incurring tax losses. This study answers that question by showing that uncertain tax choices are increasing in income for

tax choices as well as how these choices shape outcomes like the information environment, disclosure, and other features. Since the bulk of this literature relies on effective tax rates (ETRs) in all or in part to measure tax planning choices, these results are largely constrained to profitable firms. The exclusion of loss firms from these analyses has also been consistent with the framework presented by ~~Scholtz~~ authors (2015), which implies that loss firms often do not have cash benefits associated with tax planning.

Extending this work on general tax planning choices, recent studies highlight the fact that additional risk associated with uncertain tax choices can have adverse consequences for the firm. Hanlon, Maydew and Saavedra (2017) document that the adoption of projects with more tax uncertainty causes firms to hold more precautionary cash, and Jacob, Wentland and Wentland (2022) show that tax uncertainty can induce firms to delay or even forgo profitable investment decisions, potentially harming the value of the

by managing earnings between years to be able to maximize the benefits associated with losses. Often, these attributes are so important to firms that many even pass up tax loss carryover provisions to preserve the ability to offset future income (Erickson & Heitzman 2010; Sikes, Tian & Wilson, 2014). Given that firms view loss attributes as economically important, it is also important to consider the tax planning choices of firms under losses to provide a clear picture of what types of tax planning are ultimately monetized upon the use of the loss attributes.

More recent work suggests that because tax loss carryovers shift downside risk to the government, they are associated with greater risk-taking by the firm (Langenmayr & Lester, 2018). Heitzman and Lester (2022) show that consistent with more limited downside risk, investors value cash more for firms with loss carryovers. In theoretical work, De Waegenaere and coauthors (2021) highlight that the ability to carry over losses intertemporally can provide incentives for loss firms to pursue riskier investment. Consistent with these incentives, regulators and standard setters have suggested that firms may pursue even more uncertain tax planning when incurring losses, but whether firms actually do so is an empirical question (OECD 2011; GAQ 1993).

3. HYPOTHESIS DEVELOPMENT

3.1 Main hypothesis: H_1

Given that prior literature presents conflicting evidence as to whether loss firms would pursue more or less uncertain tax planning, examining the relation between uncertain tax choices and income for both firms with profits and losses is important to have a better understanding of the full set of firms and their uncertain tax choices. On one hand, prior literature implies that loss firms would adopt less uncertain tax choices due to lack of ability to monetize those choices in most years (i.e., absent the ability to carryback the net operating loss) (Scholes et al., 2015). On the other hand, studies have also found that the ability to carry over losses can induce firms to make more uncertain choices (Langenmayr & Lester, 2018; De Waegenaere et al., 2021). Regulators have also shown concern that firms may make riskier tax choices under losses due to a lower likelihood of compliance or enforcement (OECD 2011; GAQ 1993). Because these lines of prior work present conflicting reasoning as to how loss firms might choose uncertain tax planning, this article forms the following hypothesis in the null form:

H_1 : The relation between income and uncertain tax planning is not different between profit and loss firms.

3.2 Supplemental hypotheses: H_2 and H_3

To investigate this question further, the article also considers two supplemental hypotheses to better understand both how the relation between losses and uncertain tax planning varies in the cross-section as well as whether firms with prior losses have their uncertain tax planning subsequently overturned by an enforcement agency. First, the article turns to the rationale presented by regulators of the uncertain tax planning of loss firms in particular. Both the OECD and GAO have expressed concern that firms make their most uncertain tax choices in years with losses due to compliance and enforcement difficulties (OECD 2011; GAQ 1993). In line with this assertion, IRS data documents that loss firms are often examined less frequently than their profitable counterparts (IRS 2021). However, prior work has shown that the likelihood of

firms respond to the risk of enforcement. The present article anticipates that any differential relation should be attenuated by higher enforcement risk. To consider this question, the article again frames the hypothesis in the null form as follows:

H₂: The relation between losses and uncertain tax planning is not attenuated by greater risk of enforcement.

year. Second, De Simone and coauthors (2020) show that the UTB reserve reported under FIN 48 is the most powerful proxy in capturing uncertain tax choices in samples with both profit and loss firms. While some literature documents that firms have discretion in their UTB reserves (De Simone, Robinson & Stomberg 2014), studies employing proprietary IRS data show that UTB reserves capture more uncertain tax strategies effectively (Lisowsky, Robinson & Schmidt 2013; Cicotte et al, 2023). Further, although UTB reserves cannot perfectly capture the risk associated with uncertain tax choices, prior literature shows that UTB reserves are positively associated with future cash tax settlements (Robinson, Stomberg & Gowery, 2014). To confirm that the results are not due to differences in disclosure choices or measurement of income, the article also examines alternative measures of both uncertain tax choices and income in robustness analyses.

4.2 Descriptive statistics

Table 1 (Appendix B) presents univariate descriptive statistics of the sample in Panel A

term Loss*HighEnforcés negative and significant-(t

years, there is no significant relation between any of the individual coefficients for each year but the sum of the three coefficients is again negative and significant (sum = 0.0153, $t_{stat} = -2.31$). These results provide evidence of no differences between firms with prior losses in a given year and prior profits in a given year, despite the main analyses showing the positive relation between losses and uncertain tax choices. Further, the combined coefficients in these tests highlight the fact that firms with serial losses actually realize

The results of estimating Equation 2 with each of these alternative measures of income are presented in Table (Appendix B) using both industry and year fixed effects. Model 1 employs Taxable Income to define both the partitioning variable $Loss$ and

estimates Equation 2 using three different samples where the absolute value of ROA is bounded at 35%, 25%, and 15% to eliminate outlier observations for both profit and loss firms.

Table 10 (Appendix B) presents the results of these models. Model 1 shows the results where ROA is bounded at an absolute value of 35%, which eliminates about 1,000 observations from the sample compared to the main analyses. In this model, consistent with the main results, the coefficient on ROA is positive and significant (t-stat = 3.74), and the coefficient on Loss*ROA is negative and significant (t-stat = -5.41). Similarly, Model 2 restricts the sample to firms with absolute values of ROA within a band of 25% and shows similar sign and significance on both ROA (t-stat = 3.69) and Loss*ROA (t-stat = -4.88). Finally, Model 3 imposes a restriction of 15% and indicates a positive but insignificant coefficient on ROA (t-stat = 0.87) and a negative and significant coefficient on Loss*ROA (t-stat = -2.24), which implies that the relation between uncertain tax choices and profits may be driven by firms with high values of ROA but that the relation between uncertain tax choices and losses is not driven by firms with extreme low values of ROA. Taken together, these findings show that the results presented in the main analyses are not simply due to big bath accounting employed by some loss firms.

6.5 Loss persistence

In a final robustness test, the article considers whether loss persistence influences the choice of uncertain tax planning of loss firms. From a theoretical perspective, firms choose more uncertain tax planning as a means to generate future benefits. However, this feature may be driven by lower enforcement, as documented by prior research, or by lower loss persistence (i.e., the firm expects to be profitable sooner). Because the rules regarding the reserve for UTBs state that the amount should only be based on the current benefits of a position rather than the expectation of future income, the article does not anticipate that the persistence of losses should influence the relation between losses and uncertain tax planning. To support that the main findings are due to lower threat of enforcement rather than less persistent losses, the article employs a modified version of Equation 4, substituting Prior3Loss for HighEnforce. In this new model, Prior3Loss is set equal to 1 if the firm had persistent losses (i.e., losses in the prior three years). The results of estimating this equation are presented in Table 11 (Appendix B) and the inferences show that prior losses have no incremental association with uncertain tax planning. In addition, Model 2 divides the losses into the prior three years among firms with a current year loss and again finds no significant association.

6.6 Sources of incremental uncertainty

Finally, the article considers the sources of uncertain tax planning for loss firms. To do so, the article examines three potential sources of tax uncertainty identified by prior literature: (1) research and development activities, (2) intangible assets, and (3) foreign income. Empirically, the article interacts R&D, Intang, and ForeignInc with both Loss and ROA in Equation 2. The results of this analysis are presented in Table 12 (Appendix B). In Model 1, the three sources of uncertainty are interacted with Loss. The coefficients on Loss*R&D are 0.7104, Loss*Intang is 0.14186, and Loss*ForeignInc is 0.16886. The

7. CONCLUSION

This article investigates the role of losses in uncertain tax planning by considering the relation between pre-tax income and uncertain tax choices for both profit and loss firms. Recent accounting literature has indicated that firms often achieve low effective tax rates by using benefits carried over from loss years through net operating losses (Drake et al, 2020; Van der Gees & Jacob, 2020; Christensen et al, 2022). Given the importance of these carryovers generated under losses and the fact that they are used in subsequent years to reduce tax payments, it is important to understand how firms

documents that firms use tax attributes generated under losses to reap cash benefits later. This article adds to the literature by documenting that the relation between uncertain tax choices and pre-tax income is not linear across the full universe of firms and specifically that the relation is increasing in both profits and losses.

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Table 3: Losses and Uncertain Tax Choices

Model:	(1)	(2)	(3)	(4)
Coefficient				

Table 4: Spline Regression Specification

Model:	(1)			(2)		
	Coefficient		Std Error	Coefficient		Std Error
β_1 : ROA < 0	-0.2094	***	0.031	-0.0686	*	0.037
β_2	0.1788	***	0.059	0.1321	**	0.067
F- $\beta_1 - \beta_2 = 0$	28.85			5.97		
p- $\beta_1 - \beta_2 = 0$	<0.01			0.01		
Control Variables	Yes			Yes		
Year Fixed Effects	Yes			Yes		
Industry Fixed Effects	Yes			No		
Firm Fixed Effects	No			Yes		
Observations	13,360			13,360		
Adjusted Rsquared	0.079			0.581		

This Table reports spline regression results where the dependent variable is UTB-Basis. Robust standard errors are clustered by firm. ***, **, and * correspond to two-tailed significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are reported in Appendix A.

Table 6: Prior Losses and Future Settlements

Model:	(1)		(2)		(3)
	Coefficient	Std Error	Coefficient	Std Error	

Table 8: Alternative Measures for Income and Loss

Model: Loss and ROA Based on:	(1)		(2)	
	Taxable Income		Income Net of Special Items	
	Coefficient	Std Error	Coefficient	Std Error
ROA	0.1352 ***	0.048	0.2920 ***	0.068
Loss	-0.0143	0.011	0.0417 ***	0.011
Loss*ROA	-0.6332 ***	0.221	-0.4935 ***	0.080
Age	-0.0014 ***	0.000	-0.0013 ***	0.000
Size	0.0214 ***	0.003	0.0273 ***	0.003
Big4	0.0458 ***	0.011	0.0433 ***	0.011
ForeignInc	0.1922 ***	0.069	0.2392 ***	0.068
R&D	0.0008	0.001	-0.0035 **	0.002
Intang	-0.1299 ***	0.022	-0.1012 ***	0.021
Leverage	-0.0228	0.029	-0.0382	0.029
CDebt	-0.0441	0.053	-0.0937 *	0.053
STDROA	0.0254 **	0.011	0.0148	0.010
Zscore	0.0012 *	0.001	0.0000	0.001
MtB	0.0017 **	0.001	0.0011	0.001
Intercept	-0.0048	0.082	-0.1003	0.084
Industry Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
Observations	13,360		13,360	
Adjusted Rsquared	0.071		0.080	

This Table reports OLS regression results where the dependent variables are alternative measures of uncertain tax choices. Robust errors are clustered by firm. ***, **, and * correspond to tailed significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are reported in Appendix A.

Table 10: Uncertain Tax Choices by ROA Band

Model:	(1)	(2)	(3)
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Table 12: Losses and Sources of Uncertainty

Model:	Coefficient (1)	Std Error	Coefficient (2)
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Observations	13,360	13,360
Adjusted Rsquared	0.092	0.094

This Table reports OLS regression results where the dependent variable is $\ln(\text{Fed by firm})$. Robust standard errors are clustered by firm. *, **, and *** correspond to two-tailed significance at the 10%, 5%, and 1% levels, respectively. Variable definitions are reported in Appendix A.