Online Appendix to:

Explaining Tax Avoidance

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Table OA1. Full Regression Output

Our primary analyses construct theory groups from a collection of 31 explanatory variables from the tax avoidance literature (Figure 1). Our results are presented in a summarized format by theory group. To provide detail on the impact of the individual covariates, the following table presents results from the regression of *Cash ETR* (Column 1) and *GAAP ETR* (Column 2) on all covariates without aggregation by group. All variables are defined in Appendix 1. Overall, the results show that the signs of individual covariates directionally generally align with the expected relation from the literature. For example, IRS Audit Probability displays a positive relation with both ETR measures, indicating a higher probability of IRS examination decreases tax avoidance. Relatedly, measures of Financial Constraints (Rank Change KZ, No Dividends, and Junk Rating) display a negative and significant relation with Cash ETR, directionally consistent with expectations that financially constrained firms prioritize cash savings.

	(1)	(2)
VARIABLES	*Cash ETR*	*GAAP ETR*
% Institutional Ownership	-0.00	-0.02***
	(-0.61)	(-3.96)
Family Firm	0.01***	0.01
	(2.60)	(1.51)
Delta CEO	-0.00	0.00
	(-0.90)	(0.09)
Vega CEO	0.00	-0.00***
	(0.73)	(-2.84)
Equity to Total Income	0.02**	0.01*
	(2.43)	(1.65)
# Financial Experts	-0.00	-0.00
	(-0.52)	(-1.49)
% Independent	-0.02	-0.02
	(-1.12)	(-1.44)
G Index	0.00**	-0.00
	(2.21)	(-0.39)
Male CEO	0.01	0.00
	(0.67)	(0.10)
Manager Ability	0.05***	0.01
	(3.57)	(1.11)
Tax Comment Letter Firm	0.00	-0.00
	(1.06)	(-0.58)
IRS Audit Probability	0.10***	0.25***
	(4.00)	(11.92)
Earnings Announcement Speed	-0.25***	-0.16***
	(-4.72)	(-3.53)
Auditor Tax Expert	0.01*	-0.00
	(1.69)	(-0.05)
DFIN	-0.00***	-0.00*
	(-3.88)	(-1.84)
EPS Miss	-0.01	0.02*
	(-0.55)	(1.70)
Rank Change Z	0.00***	0.00***

	(3.02)	(4.20)
Rank Change KZ	-0.01***	0.00
	(-6.53)	(0.82)
No Dividends	-0.02***	-0.01**
	(-4.76)	(-2.41)
Junk Rating	-0.02***	-0.00
	(-3.37)	(-0.37)
R&D	-0.45***	-0.42***
	(-9.06)	(-9.45)
Intangible Intensity	-0.01	-0.02
	(-0.91)	(-1.56)
Foreign Income	-0.16***	-0.47***
	(-2.77)	(-9.07)
Havens	-0.03**	0.01
	(-2.42)	(0.44)
Multinational Corporation	0.00	0.00
	(0.33)	(0.35)
BTM	0.01	-0.00
	(0.97)	(-0.38)
Capital Intensity	-0.08***	0.00
	(-6.22)	(0.41)
Size	-0.01***	-0.00
	(-4.92)	(-0.53)
NOL	-0.03***	0.00
	(-5.44)	(0.68)
ROA Pre-tax	-0.00	0.43***
	(-0.10)	(17.65)
Leverage	-0.06***	-0.05***
	(-4.60)	(-4.39)
Constant	0.34***	0.21***
	(10.13)	(7.26)
Observations	8,167	8,167
R-squared	0.055	0.122
Adjusted R-squared	0.0512	0.119

Table OA2. Standardized Regressions

Our approach using Shapley Values to assess the explanatory power of variables aligns with recent calls in the literature to move beyond sole reliance on t-statistics for evaluating the relevance of findings, particularly in large-sample settings. For example, Johannesson et al. (2024) critique the potential for statistically significant t-statistics even when a variable adds virtually no explanatory power, often driven simply by large N. They propose standardized regressions (SR) as an alternative method. In the SR approach, all variables are normalized before estimating the regression. The relevance of an independent variable is then assessed based on the magnitude of its estimated standardized coefficient (often called a beta coefficient), with the idea that larger magnitude coefficients, in absolute value, indicate greater importance. Johannesson et al. (2024) empirically demonstrate a strong correlation between the SR coefficient magnitude and the variable's incremental contribution to model fit (measured by the change in Pearson correlation between actual and fitted values), suggesting that SR coefficients can serve as a useful indicator of explanatory power, independent of sample size.

While both SR and the Shapley Value methodology used in our study address the limitations of traditional significance testing, they differ in how they quantify explanatory contribution. The Shapley Value provides a direct decomposition of the model's overall R-squared. It calculates the precise percentage of the total explained variance attributable to each variable (or group of variables), representing the average marginal contribution across all possible model permutations. This differs from the SR approach, where explanatory contribution is *inferred* from the standardized coefficient's magnitude. This is because standardized coefficients relate to explanatory power so long as the independent variables are uncorrelated (Bring, 1994). Johannesson et al. (2024) show that even when the independent variables are correlated, the SR coefficient is strongly associated with explanatory power. However, Shapley Values offer a more fundamentally grounded and direct measure of a variable's contribution to the model's explanatory power.

Furthermore, the Shapley Value approach has several other benefits. First, Shapley Values inherently accommodate various types of explanatory variables commonly used in accounting research, including binary indicator variables. Since Shapley Values are based on the marginal change in explanatory power when a variable is added to different model combinations, the variable's scale or type (e.g., continuous vs. binary) does not complicate the interpretation; the focus remains on its impact on explained variance. In contrast, the interpretation and standardization of binary indicator variables within the SR framework can be less intuitive than for continuous variables. For instance, firms cannot experience a standard deviation move in "family firm" status (e.g., Chen et al. 2010), and the standard deviation of that variable depends on the proportion of family firm observations in the sample (i.e., the mean). Hence, SR coefficients are difficult to interpret and compare to those of continuous variables. Second, Shapley Values can accommodate highly correlated independent variables, which SR explicitly is not designed to handle. Because Shapley Values examine every possible permutation of the full model, they can distinguish the variable that drives the explanatory power even among multiple correlated variables. This can also be important in settings where a new independent variable adds little total explanatory power but is shown to be a fundamental characteristic that accounts for much of the explanatory power previously attributed to other factors in the model. Third, Shapley Values can easily examine groups of variables simultaneously, as we do in our paper, whereas SR has no clear theoretical basis or methodology for this. Ultimately, while SR offers a valuable step away from overreliance on t-statistics, we believe the Shapley Value decomposition provides a particularly robust, direct, and versatile method for quantifying the relative explanatory power of determinants in models of tax avoidance and other complex phenomena.

In Table OA2 below, we tabulate SR results. In Panel A we summarize the effects by theory group, and in Panel B we present full SR results. In Panel A, the first three columns relate to *Cash ETR* specifications, and the next three columns relate to *GAAP ETR* specifications. Column (a) indicates the average absolute coefficient in each theory group. We use these averages to compare groups, although, as noted above, there is no well-established method for aggregating SR coefficients at the group level. Column (b) reports the resulting SR-based ranking, and Column (c) reports the original Shapley-based ranking for comparison. The *GAAP ETR* results remain broadly consistent with the Shapley rankings reported in Figure 2. Operating Metrics remains the highest-ranked group, Investment Opportunities remains second, and Enforcement remains third. The main change is that Financial Reporting moves up to fourth, while Agency Costs, Financial Constraints, and Size occupy the bottom three positions. The *Cash ETR* results exhibit somewhat more reordering. Investment Opportunities remains the highest-ranked group, but Financial Reporting moves up to second and Enforcement to third, followed by Operating Metrics, Financial Constraints, Agency Costs, and Size. Thus, the SR results continue to highlight Investment Opportunities, Enforcement, and Operating Metrics as important, while also suggesting a more prominent role for Financial Reporting than is evident in the original group rankings based on Shapley Values. The untabulated correlation of the SR coefficient rankings and Shapley Value rankings is 0.54, suggesting that the approaches are correlated overall.

Panel A: Summary of Coefficients by Group

	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)
	Cash ETR			***GAAP ETR***		
	Average SR Coefficient	Average Ranking	Original Ranking	Average SR Coefficient	Average Ranking	Original Ranking
Agency Costs	0.012	6	4	0.008	5	4
Enforcement	0.050	3	7	0.126	3	3
Financial Reporting	0.065	2	5	0.046	4	7
Financial Constraints	0.012	5	2	0.004	6	5
Investment Opportunities	0.107	1	1	0.132	2	2
Size	0.010	7	6	0.001	7	6
Operating Metrics	0.032	4	3	0.160	1	1

Panel B: Full Standardized Regression Results

VARIABLES	(1) *Cash ETR*	(2) *GAAP ETR*
% Institutional Ownership	-0.0030	-0.0171
	(-0.6084)	(-3.9618)
Family Firm	0.0122	0.0063
	(2.5977)	(1.5103)
Delta CEO	-0.0000	0.0000
	(-0.9004)	(0.0923)
Vega CEO	0.0000	-0.0000
	(0.7264)	(-2.8410)
Equity to Total Income	0.0191	0.0114
	(2.4263)	(1.6464)
# Financial Experts	-0.0006	-0.0016
	(-0.5170)	(-1.4864)
% Independent	-0.0206	-0.0234
	(-1.1215)	(-1.4377)
G Index	0.0018	-0.0003
	(2.2124)	(-0.3858)
Male CEO	0.0072	0.0010
	(0.6708)	(0.1036)
Manager Ability	0.0533	0.0147
	(3.5661)	(1.1139)
Tax Comment Letter Firm	0.0043	-0.0021
	(1.0603)	(-0.5799)
IRS Audit Probability	0.0952	0.2506
	(4.0024)	(11.9167)
Earnings Announcement Speed	-0.2452	-0.1618
	(-4.7247)	(-3.5284)
Auditor Tax Expert	0.0075	-0.0002
	(1.6938)	(-0.0508)
DFIN	-0.0000	-0.0000
	(-3.8816)	(-1.8362)
EPS MISS	-0.0082	0.0223
	(-0.5493)	(1.6960)
Rank Change Z	0.0022	0.0027
	(3.0151)	(4.1976)
Rank Change KZ	-0.0055	0.0006
	(-6.5348)	(0.8218)
No Dividends	-0.0214	-0.0095
	(-4.7624)	(-2.4051)
Junk Rating	-0.0183	-0.0018
	(-3.3709)	(-0.3681)
R&D	-0.4529	-0.4172
	(-9.0645)	(-9.4496)
Intangible Intensity	-0.0120	-0.0182
	(-0.9102)	(-1.5612)
Foreign Income	-0.1623	-0.4705
	(-2.7669)	(-9.0737)
Havens	-0.0341	0.0055
	(-2.4180)	(0.4409)
Multinational Corporation	0.0045	0.0043
	(0.3294)	(0.3523)
BTM	0.0061	-0.0021
	(0.9668)	(-0.3844)
Capital Intensity	-0.0785	0.0046
	(-6.2205)	(0.4091)
Size	-0.0104	-0.0010
	(-4.9157)	(-0.5328)
NOL	-0.0334	0.0037
	(-5.4401)	(0.6772)
ROA Pre-tax	-0.0026	0.4253
	(-0.0960)	(17.6482)
Leverage	-0.0612	-0.0516
	(-4.6041)	(-4.3934)
Constant	0.3356	0.2127
	(10.1285)	(7.2648)
Observations	8,167	8,167
R-squared	0.0550	0.1220
Adjusted R-squared	0.0512	0.1190

Table OA3. Factor Analysis

Our primary analyses construct theory groups from a collection of 31 explanatory variables from the tax avoidance literature (Figure 1) with the number of variables per group ranging from 1 to 10. The theory groups allow us to explore the relative explanatory power of theoretical constructs using established proxies from the tax avoidance literature. The uneven distribution of explanatory variables between the theory groups presents a potential disadvantage of our empirical design. Factor Analysis provides a methodology to quantify latent constructs that link variables in our identified theory groups (Allee, Do, and Raymundo 2022).

To test the potential implications of uneven variable counts, we use factor analysis to create two factors for each theory group consisting of three or more explanatory variables. For the theory groups with fewer than three variables (Enforcement and Size), the original variables are retained. These factors replace the theory groups in equation (1) to generate new Shapley Values and relative rankings of explanatory power. In this test, we examine how this changes the relative rankings (Panel A) and the actual Shapley Values (Panel B). Specifically, Panel A, Column 1a (2a) displays the *Cash ETR* (*GAAP ETR*) Shapley Values from the Factor Analysis specification, while Panel A, Columns 1b (2b) and 1c (2c) displays the *Cash ETR* (*GAAP ETR*) ranking of explanatory power for the modified Factor Analysis and original specifications, respectively. Panel B shows the difference in Shapley Values, with Columns 1a (2a) and 1b (2b) displaying the *Cash ETR* (*GAAP ETR*) Shapley Values from the modified Factor Analysis and original specifications, respectively; Panel B, Column 1c (2c) display the difference between the new and original Shapley Values for the *Cash ETR* (*GAAP ETR*) analyses.

The Factor Analysis results for *Cash ETR* (Panel A, Columns 1a-1b) display the highest explanatory power for Financial Constraints and Investment Opportunities. This ranking is broadly consistent with the results of the original analysis (Panel A, Column 1c), which also finds that these two theory groups display the highest explanatory power (although their ordering reverses in the factor analysis specification). The Factor Analysis results for *GAAP ETR* (Panel A, Columns 2a-2b) display the highest explanatory power for Operating Metrics, Enforcement, and Investment Opportunities (Panel A, Column 2c), which is consistent with the original analyses. The comparison of Shapley Values in Panel B further illustrates that most changes between the modified Factor Analysis and original model are relatively small, with only one exceeding 10%. The singular large change (13%) relates to the *Cash ETR* Shapley Value of Financial Constraints, a theory group that ranks highly in both *Cash ETR* models.

These results yield a few important takeaways for our primary analysis. First, the underlying variable count does not provide a clear advantage for any theory group. Agency Costs has the highest variable count but consistently ranks in the bottom half of the explanatory rankings. Second, the inferences from our primary analysis as reflected in the highest-ranked theory groups remain broadly intact. For the Factor Analysis tests of *Cash ETR*, the theory groups with the fewest variables do improve in relative ranking of explanatory power and increased Shapley Values, but the Shapley Values do not overtake those identified to be most important in the original model.

Panel A: Ranking Changes

	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)
		Cash ETR			***GAAP ETR***	
	New Shapley Value	*New Ranking*	*Original Ranking*	*New Shapley Value*	*New Ranking*	*Original Ranking*
Agency costs	5%	6	4	6%	4	4
Enforcement	9%	4	6	26%	2	3
Financial reporting	2%	7	5	0%	7	6
Financial constraints	34%	1	2	3%	5	5
Investment opportunities	30%	2	1	18%	3	2
Size	11%	3	7	2%	6	7
Operating metrics	9%	5	3	45%	1	1
Observations	8,167			8,167		
Adjusted R-squared	0.032			0.106		

Panel B: Shapley Value Changes

	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)
		Cash ETR			***GAAP ETR***	
	New Shapley Value	*Original Shapley Value*	*Difference*	*New Shapley Value*	*Original Shapley Value*	*Difference*
Agency costs	5%	11%	-6%	6%	9%	-3%
Enforcement	9%	5%	5%	26%	20%	5%
Financial reporting	2%	9%	-7%	0%	2%	-1%
Financial constraints	34%	21%	13%	3%	4%	-1%
Investment opportunities	30%	34%	-4%	18%	25%	-7%
Size	11%	6%	4%	2%	2%	0%
Operating metrics	9%	13%	-5%	45%	39%	6%
Observations	8,167	8,167		8,167	8,167	
Adjusted R-squared	0.032	0.051	-0.020	0.106	0.119	-0.013

Table OA4. Example Tabulation with Shapley Values

The Shapley Value approach provides a measure of relative explanatory power that can supplement commonly tabulated regression outputs, such as the coefficient, t-statistic, statistical significance and total R-squared. The below example reports the typical tabulation of a regression of *Cash ETR* on *No Dividends* and a vector of common control variables. In addition to the t-statistic, we report the Shapley Value for each independent variable. The results indicate that *No Dividends*, a measure of Financial Constraints, has a highly significant, negative relation with *Cash ETR*. Further, the results quantify the relative explanatory power attributed to *No Dividends* through the Shapley Value of 8.56%. Researchers may consider a similar tabulation of results to easily interpret explanatory power. For instance, in the below model, the variable of interest, *No Dividends*, is approximately twice as impactful in explaining the variation in *Cash ETR* when compared to *Size*, but still only has less half the impact of *Capital Intensity*. Dependent upon the research question, the inclusion of a Shapley Value in the tabulation of results may provide additional evidence of an impactful relation (or lack thereof) between the variable of interest and the tested outcome.

	(1)
	Cash ETR
No Dividends	-0.03***
t-statistic	(-15.61)
Shapley Value	8.56%
NOL	-0.03***
t-statistic	(-14.14)
Shapley Value	6.88%
ROA Pre-tax	-0.06***
t-statistic	(-6.53)
Shapley Value	0.97%
Leverage	-0.07***
t-statistic	(-13.78)
Shapley Value	11.44%
Intangible Intensity	-0.02***
t-statistic	(-3.40)
Shapley Value	1.37%
Capital Intensity	-0.10***
t-statistic	(-20.61)
Shapley Value	22.99%
Multinational Corporation	0.11***
t-statistic	(24.63)
Shapley Value	30.68%
BTM	0.01***
t-statistic	(9.07)
Shapley Value	6.08%
Size	-0.01***
t-statistic	(-9.94)
Shapley Value	3.44%
RD	-0.32***
t-statistic	(-14.67)
Shapley Value	7.58%
Constant	0.25***
	(37.86)
Observations	52,617
Adjusted R-squared	0.039
R-squared	0.039

Figure OA1. Shapley Values Over Time

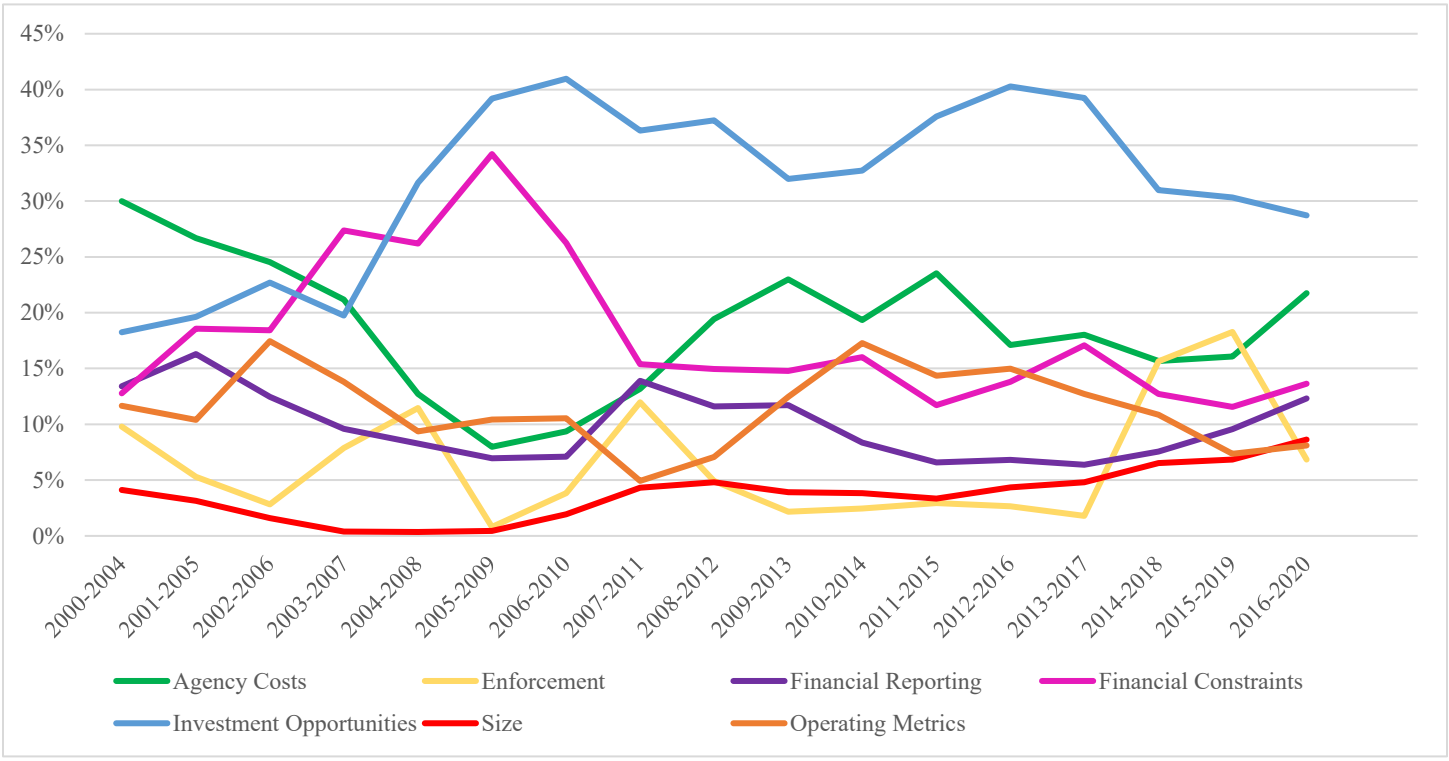
Our analyses intentionally reflect a long sample period to provide overarching takeaways from the tax avoidance literature. To better understand how tax law, tax planning strategies, and firm incentives evolve, we supplement the on-average results of our analysis by repeating the Shapley Value computation over time.

Figure OA1 shows the relative importance of theory groups and fixed effects in explaining tax avoidance over time. To derive the figures in Panels A, B, C, D, E and F, we follow the methodologies described in Figures 2, 3, and 5, respectively, except that we compute Shapley Values in rolling five-year windows so that relative importance can be determined for all fixed effects. Panels A and B reflect the Shapley Values for theory groups for *Cash* and *GAAP ETR*s, respectively. Panels C and D reflect the Shapley Values for fixed effects for *Cash* and *GAAP ETR*s, respectively. Panels E and F reflect the Shapley Values for fixed effects for business unit and geographic segments, respectively.

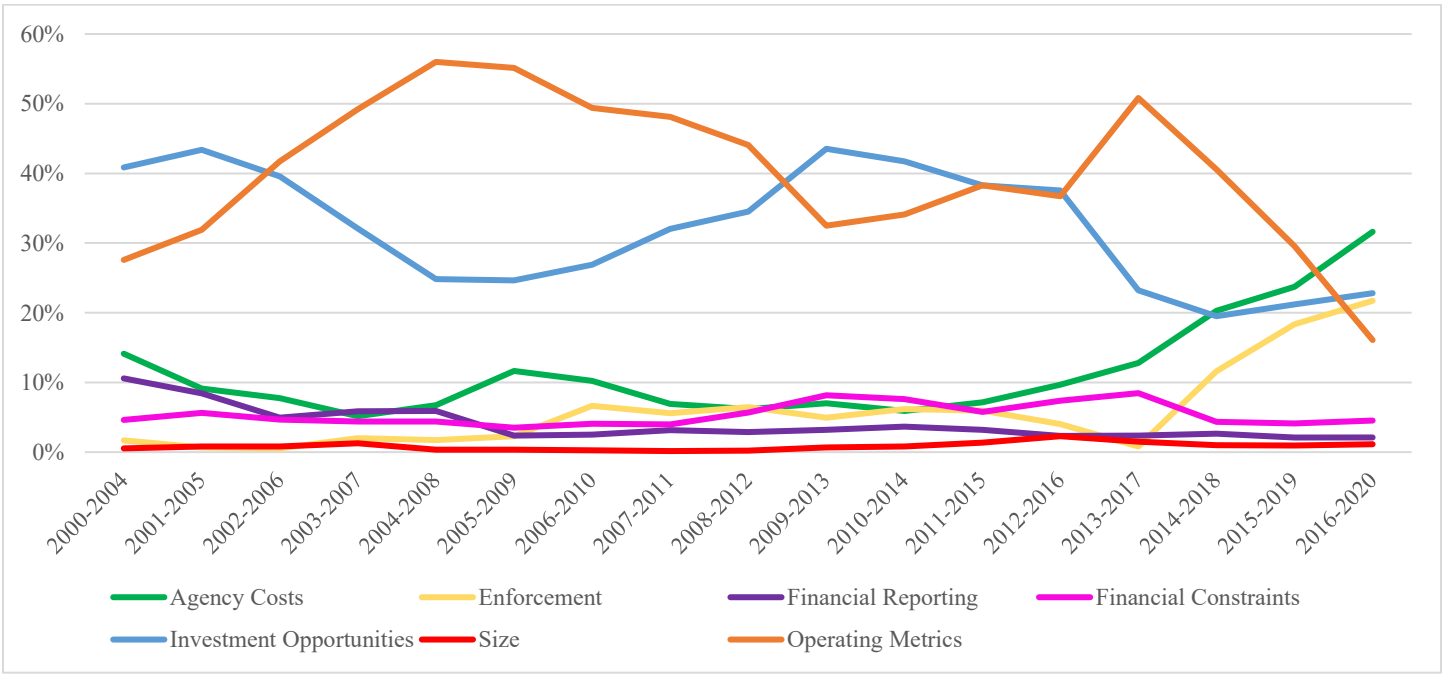
Note: Although all the fixed effects in Panels C and D are available beginning after 1987, there are almost no manager changes at the beginning of the sample. The influence of manager fixed effects becomes more evident once the sample reaches a critical mass of 1,000 manager fixed effects in 1991.

The over-time analysis of Shapley Values provides additional insight into the on-average results presented in Figures 2, 3 and 5. For instance, although there is variation over the sample period, the highest Shapley Values, on average, tend to remain highly ranked over time (e.g., Investment Opportunities in the Panel A for *Cash ETR*). Relatedly, the lowest Shapley Values, on average, display consistently low values over time (e.g., Financial Reporting for *GAAP ETR*). Further, the relative importance of various fixed effects in explaining ETRs is fairly consistent over time, with few rank changes. This result is particularly true for segment ETRs, which display no rank changes during the sample period (Panels E and F).

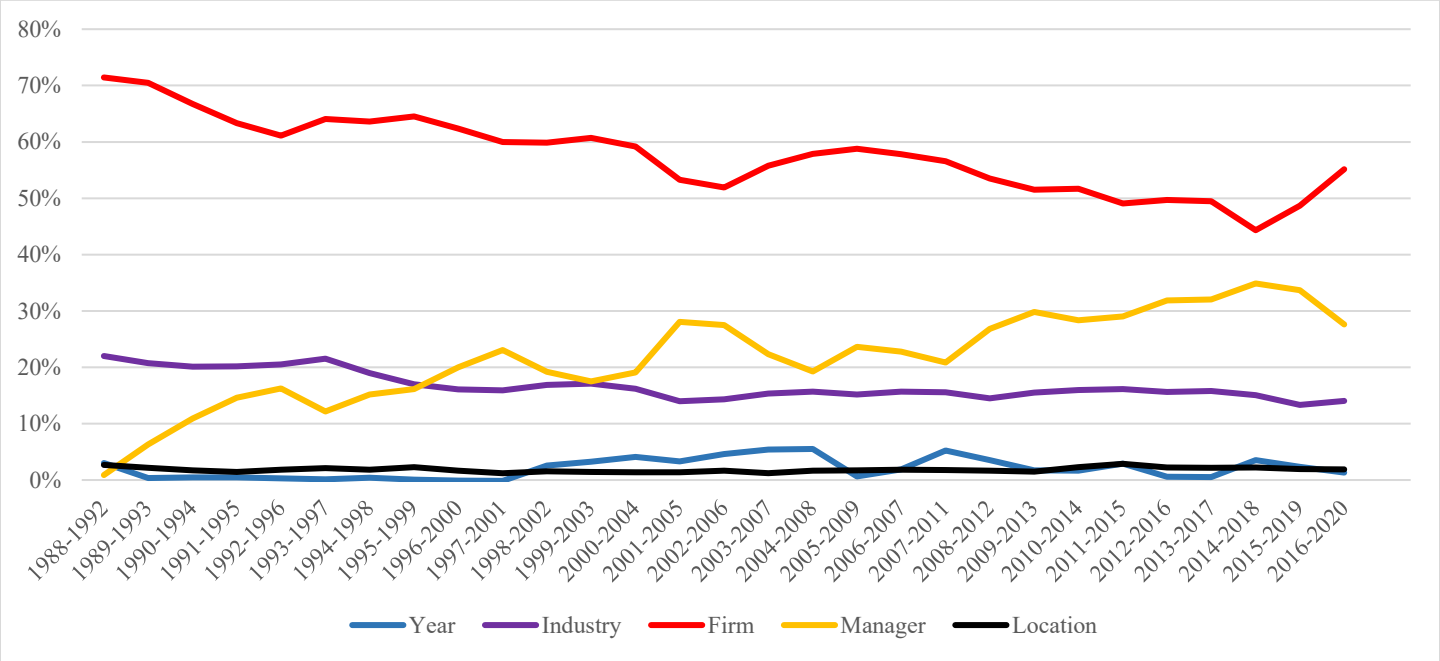
Panel A: Theory Groups (Cash ETR)



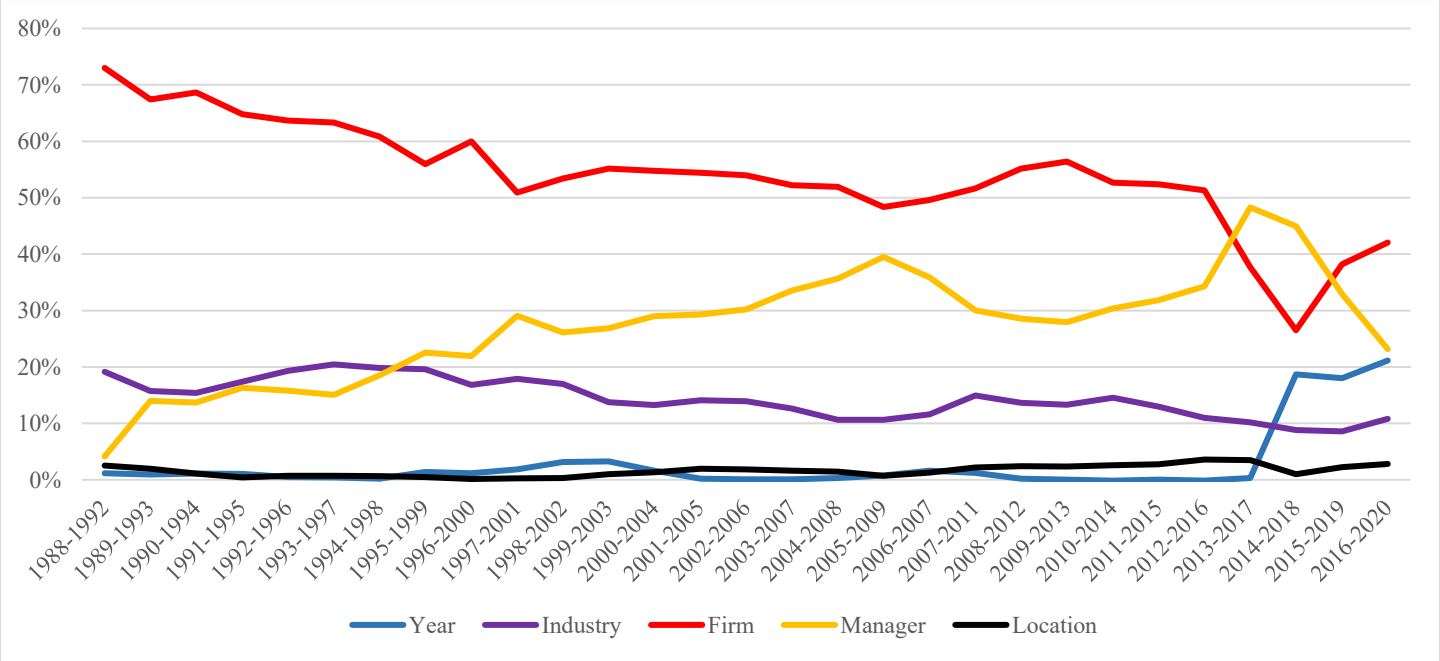
Panel B: Theory Groups (GAAP ETR)



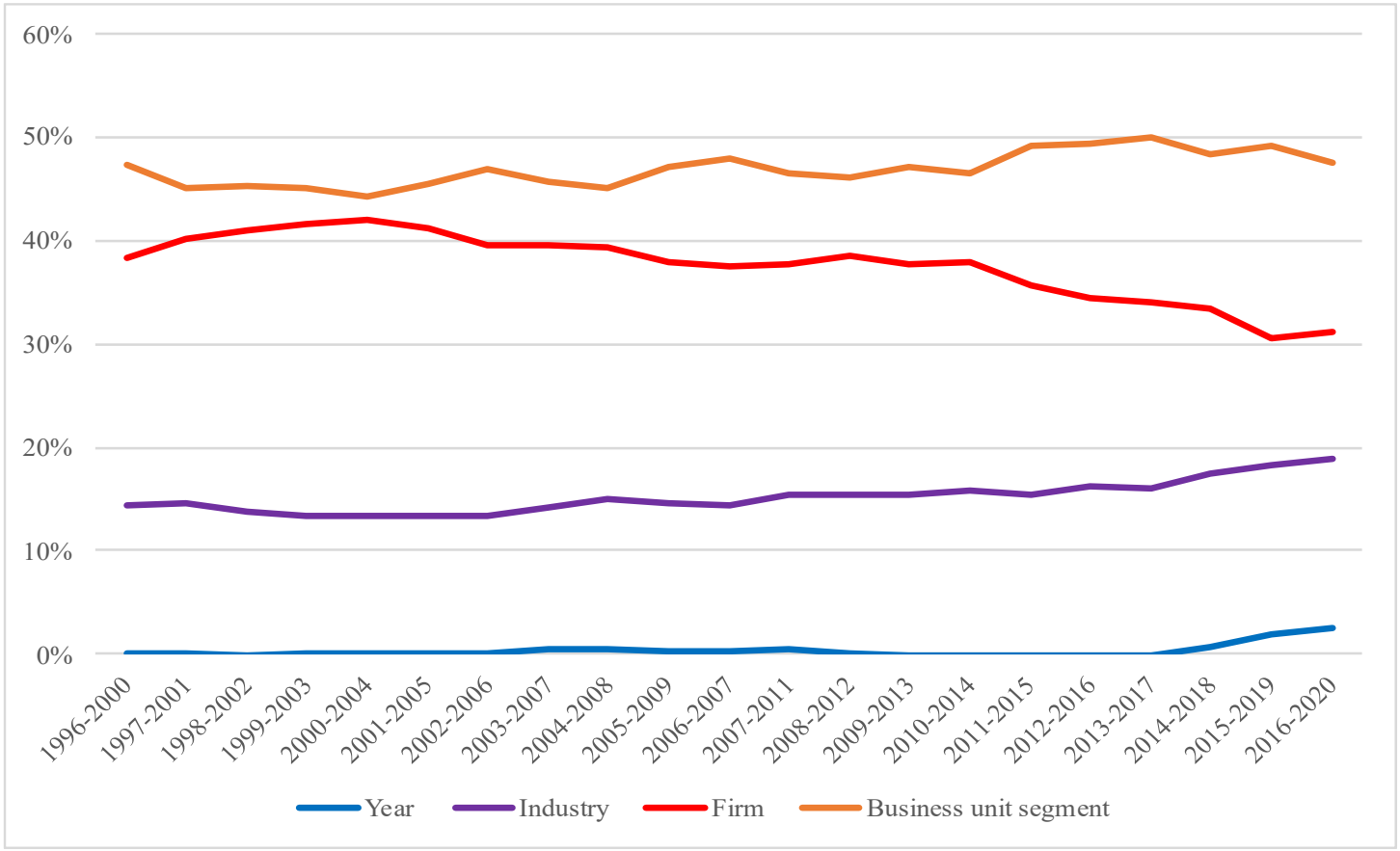
Panel C: Fixed Effects (Cash ETR)



Panel D: Fixed Effects (GAAP ETR)



Panel E: Business Unit Segments (GAAP ETR)



Panel F: Geographic Segments (GAAP ETR)

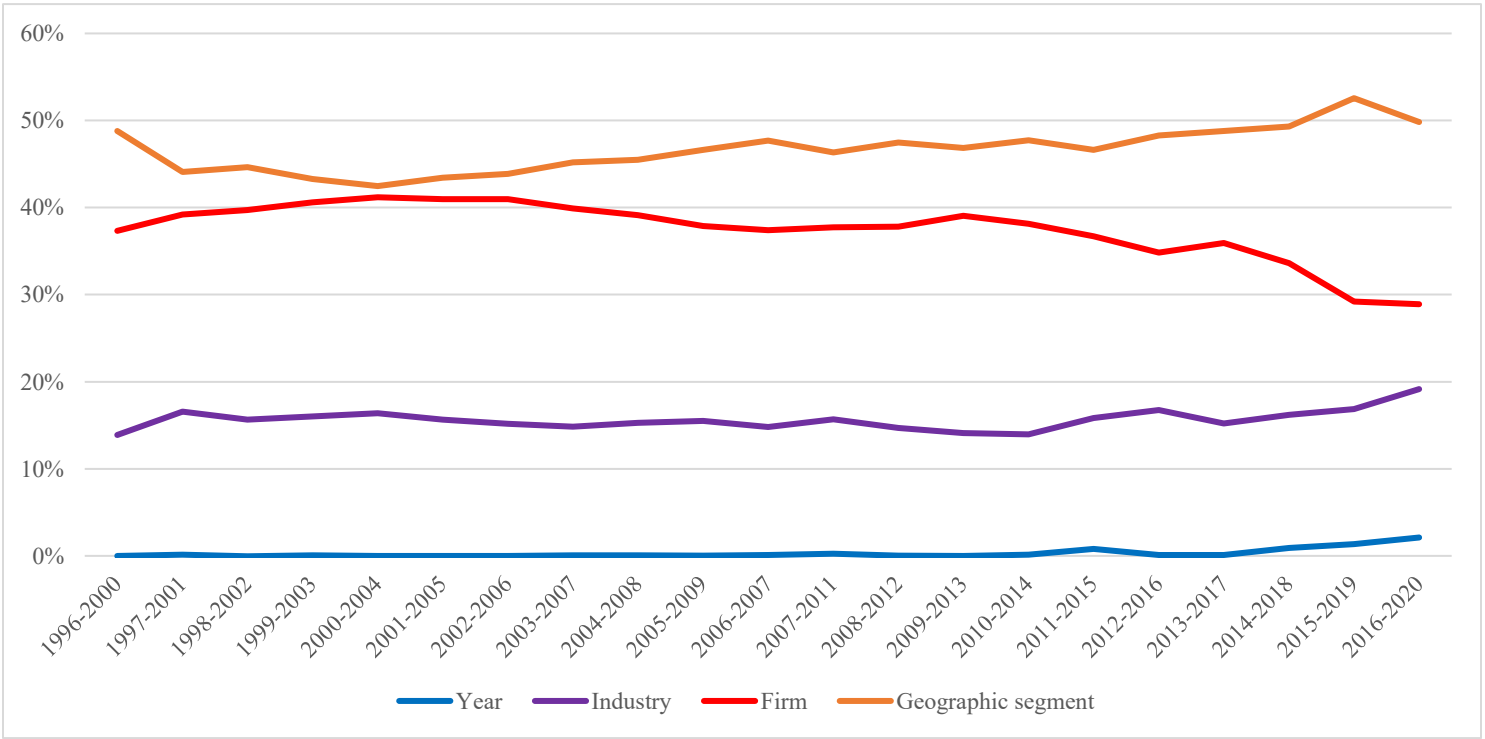
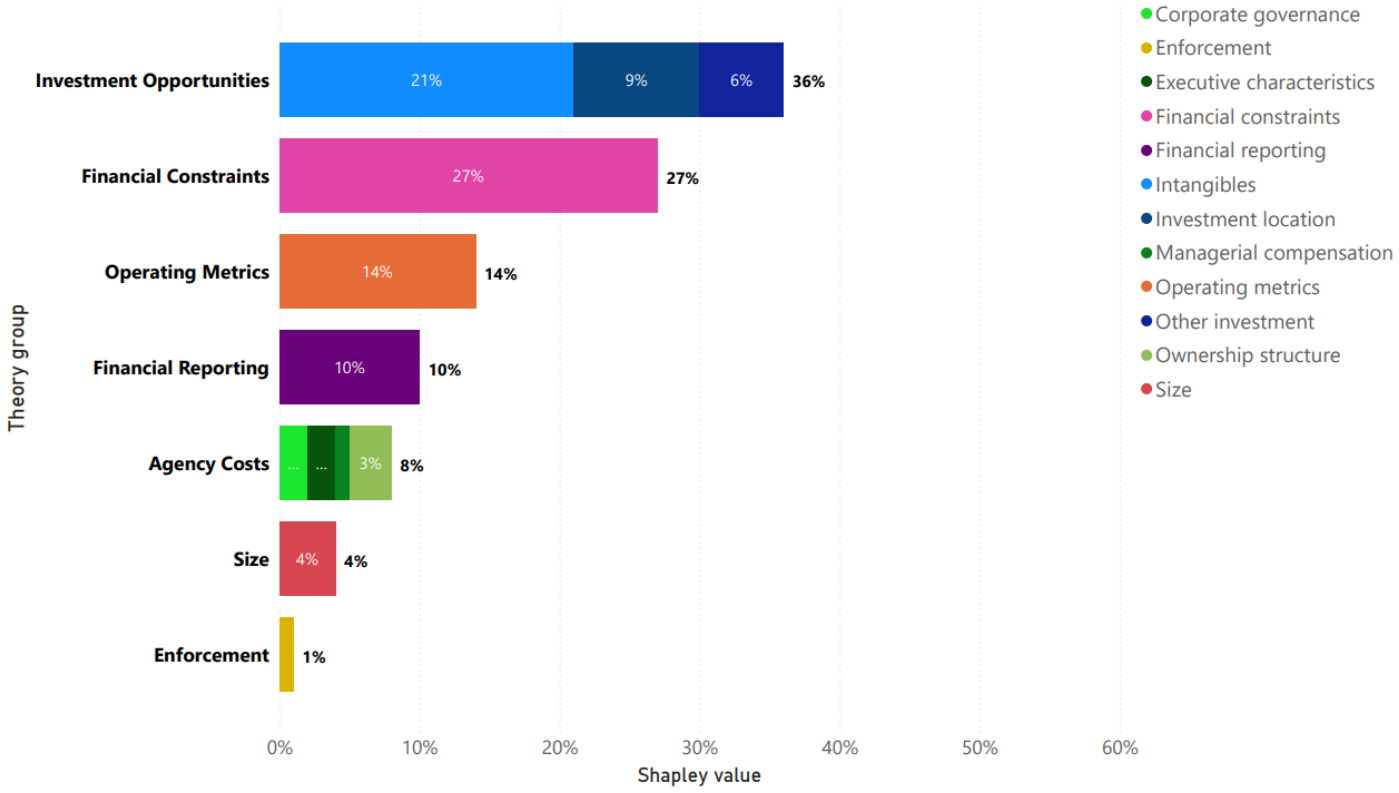


Figure OA2: Pre-TCJA Sample Period

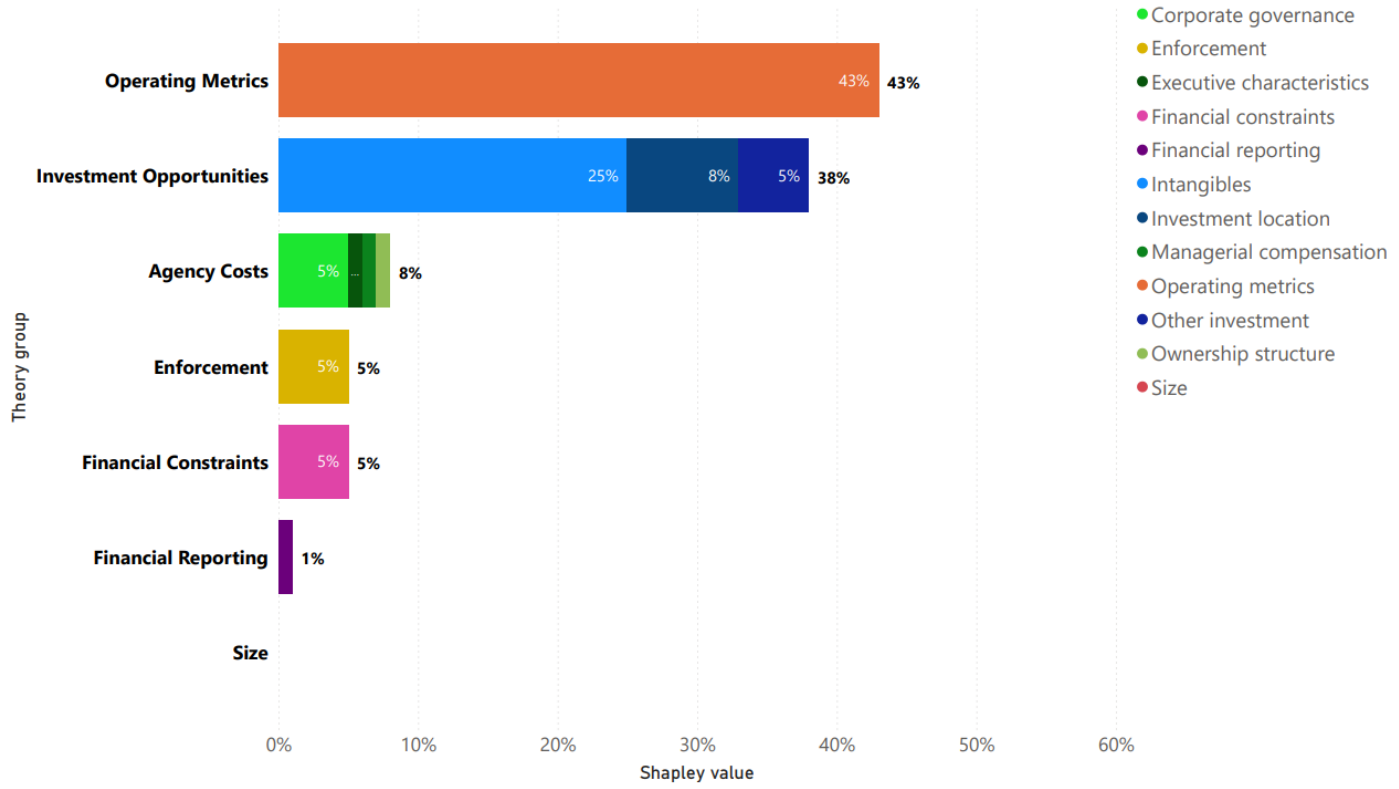
We further supplement the average results (Figures 2 and 3) and over time results (Figure OA1, Panels A-D) by directly considering the impact of the 2017 TCJA. The below figure reflects the analysis presented in Figures 2 and 3 with an adjusted sample period that ends in 2017. This adjustment provides additional detail on how the TCJA may impact our overall inferences.

The interpretation of the Pre-TCJA analysis is generally consistent with the results for the longer sample period. The ranking of Shapley Values in Panels C and D is unchanged from the shortening of the sample period. Panel A is generally consistent with only the theory groups in the fourth and fifth position trading overall rank (Agency Costs and Financial Reporting). Panel B shows the greatest change with the theory groups in the third and fourth positions (Agency Costs and Enforcement) and sixth and seventh positions (Financial Reporting and Size) trading overall rank. Despite this shift, the primary takeaways of the analysis of theory groups and *GAAP ETR* are similar as the top 2 theory groups (Operating Metrics and Investment Opportunities) remain the top 2 contributions to explained variation, far exceeding all other theory groups.

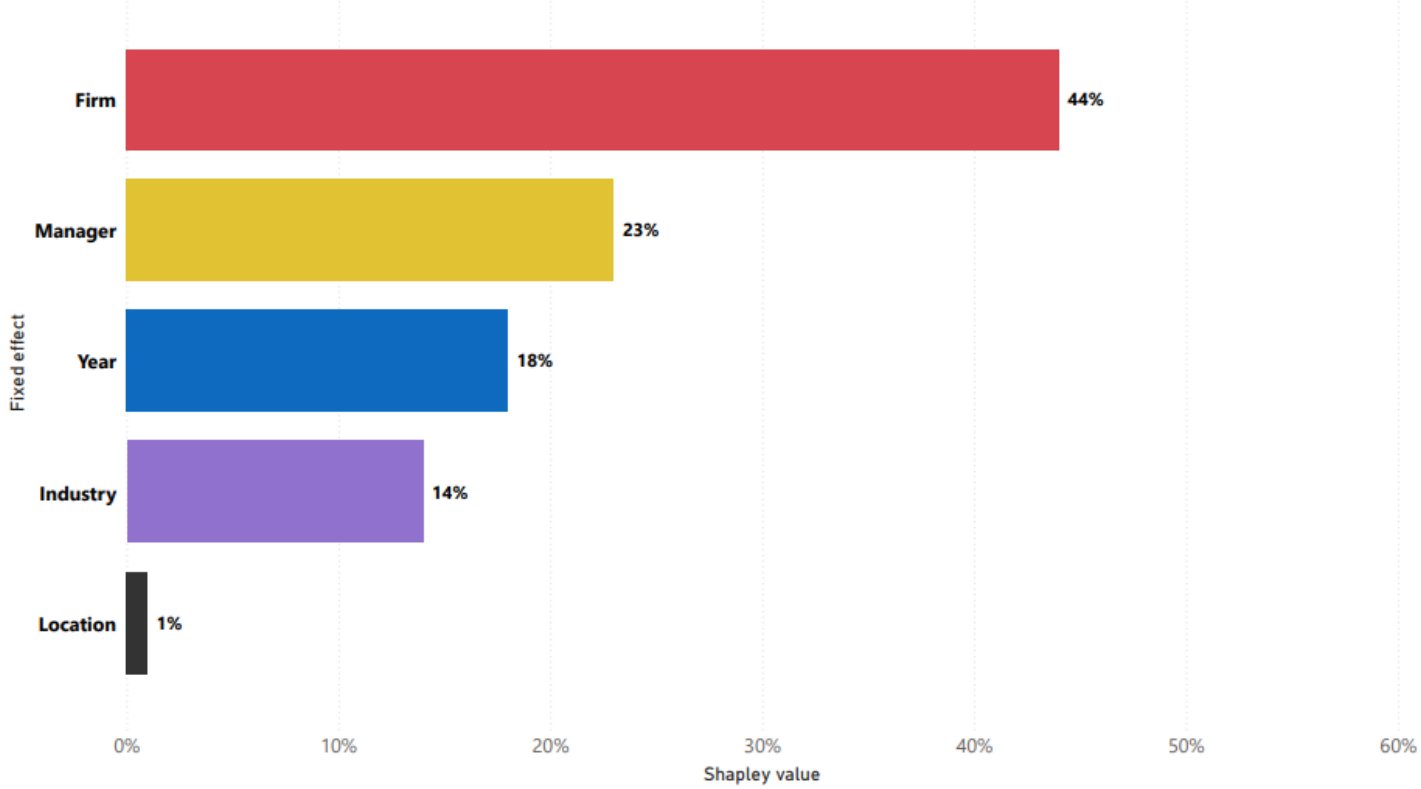
Panel A: Pre-TCJA Shapley Values of theory groups (Cash ETR)



Panel B: Pre-TCJA Shapley Values of theory groups (GAAP ETR)



Panel C: Pre-TCJA Shapley Values of fixed effects (Cash ETR)



Panel D: Pre-TCJA Shapley Values of fixed effects (GAAP ETR)

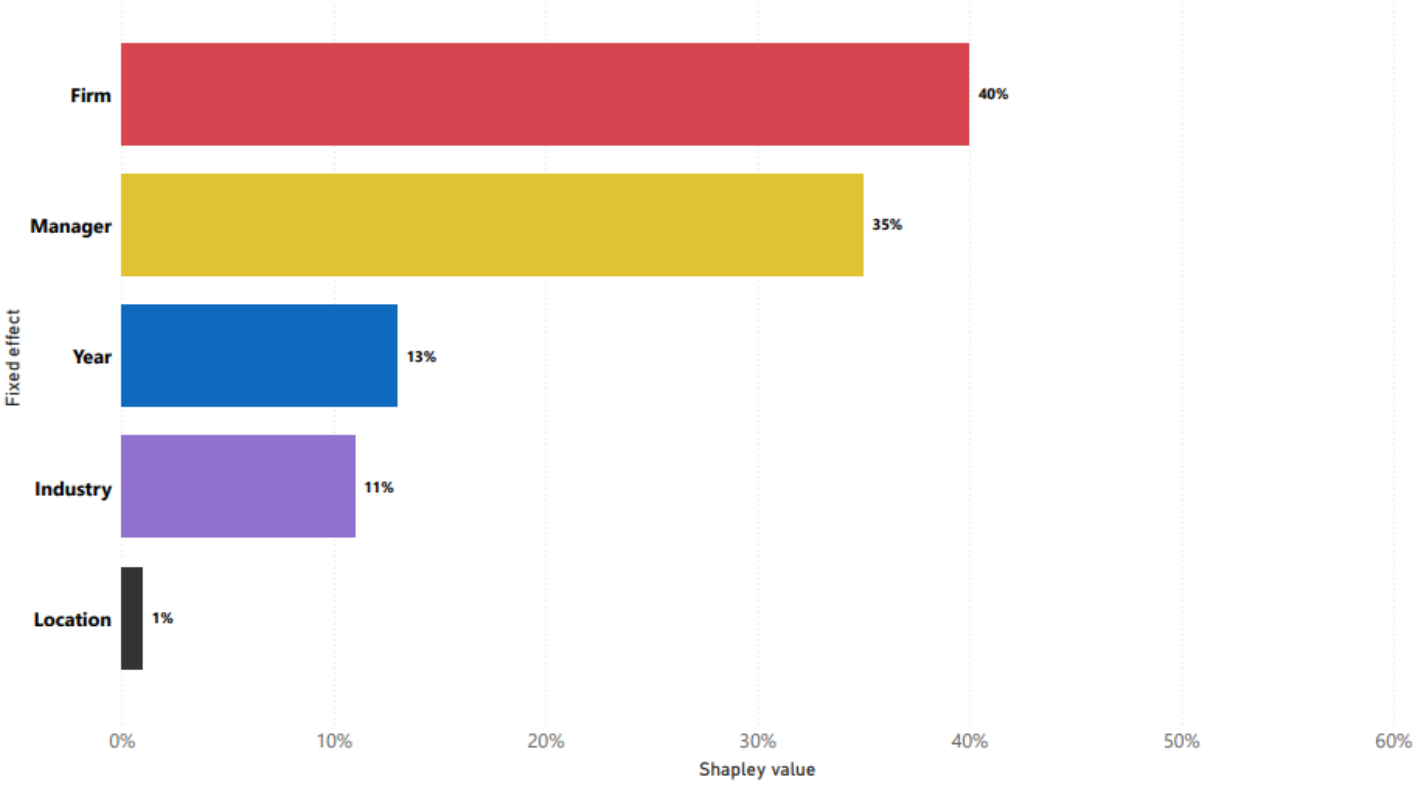


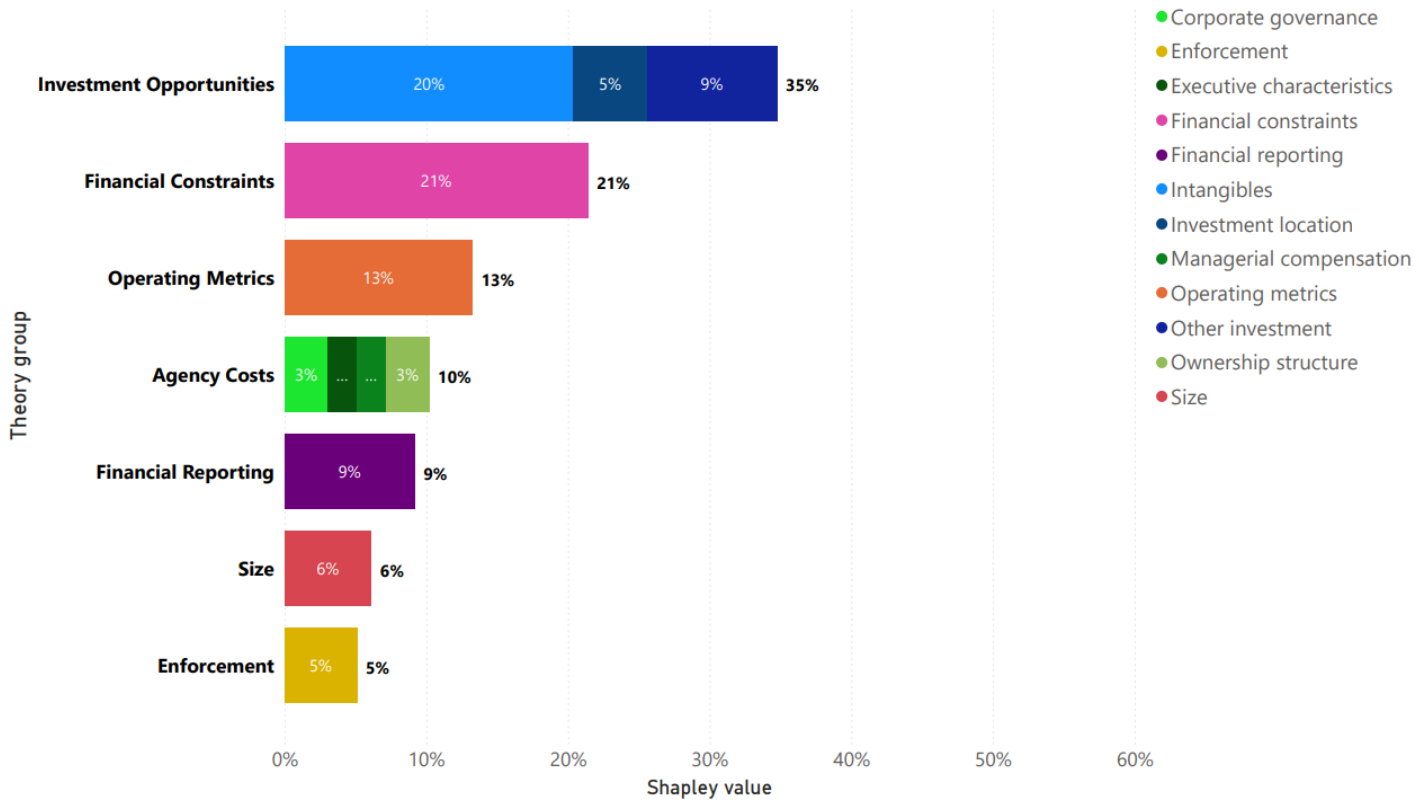
Figure OA3. Robustness to Exclusion of Variables with Limited Variation

In developing our theory group analysis, we have followed a systematic process to include variables from the prior literature that are both widely cited and available for a broad sample. One potential concern is that some explanatory variables may exhibit limited variation, which may mechanically constrain their contribution to explained variation (e.g., Kumar et al. 2020). As a robustness check, we identify one such circumstance where there is limited variation in our selected variables and reperform our primary analysis after adjusting the set of variables included in the model.

Specifically, we consider the inclusion of *Multinational Corporation*, an indicator variable equal to 1 if the firm has a non-zero value of foreign income. In our theory group sample, the mean value is 0.98 (Table 2), indicating limited variation in the sample. In Panels A and B of Figure OA3, we display results for a revised version of our main specification where we exclude *Multinational Corporation*. Both sets of results (Cash ETR in Panel A; GAAP ETR in Panel B) are nearly identical to those from the original analysis (Figure 2), with the change to the Shapley Value of the impacted subcategory of "Investment Location" reducing from 5.15% to 5.09% (*Cash ETR*) and 6.45% to 6.42% (*GAAP ETR*), untabulated.

This robustness check indicates that our results are not overly sensitive to the inclusion of low-variation indicators or to reasonable alternative proxy choices, reinforcing that the Shapley Value framework captures relative explanatory power in the data rather than artifacts of specific variable selection.

Panel A: Shapley Values for Cash ETR Tests (Remove MNC)



Panel B: Shapley Values for GAAP ETR Tests (Remove MNC)

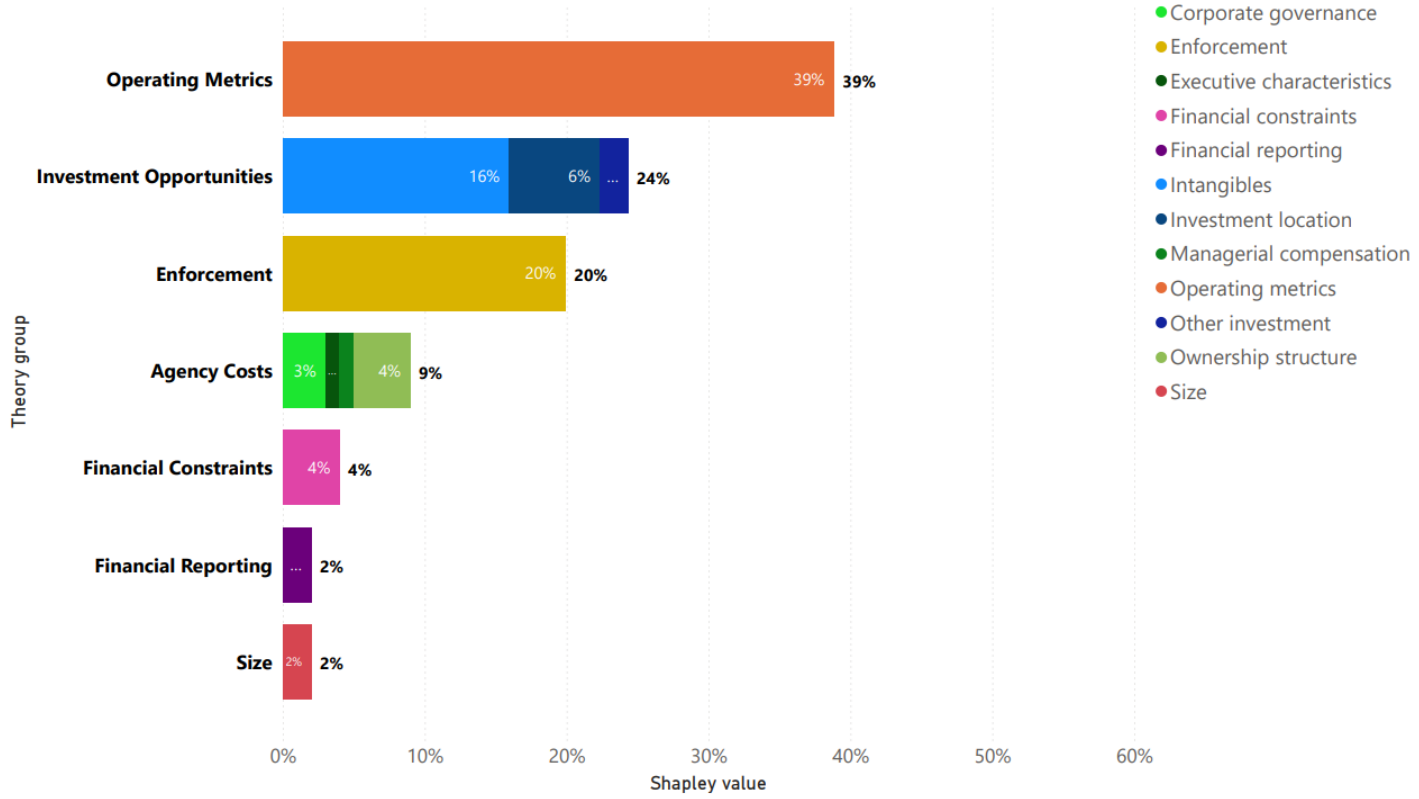


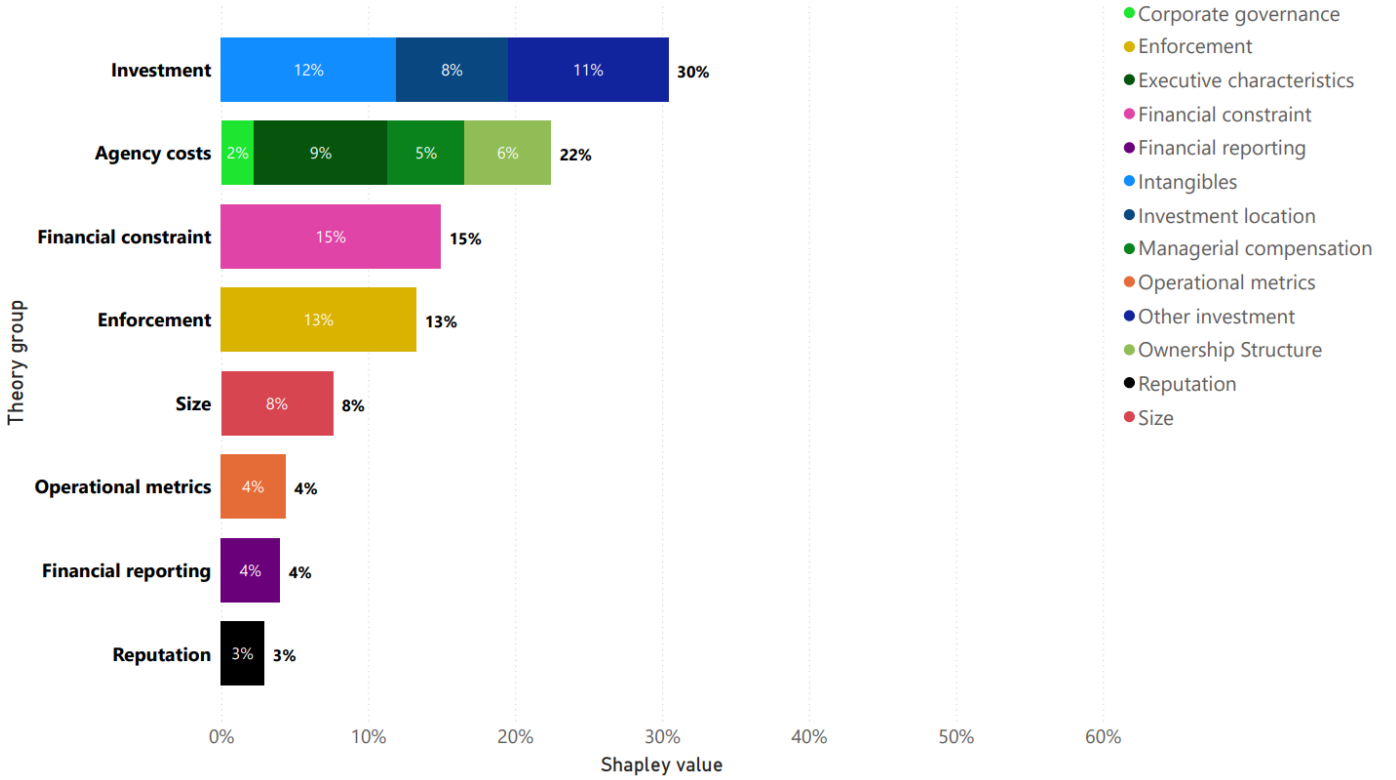
Figure OA4. Inclusion of Reputation as Additional Theory Group

As discussed in the paper, our identification of theoretical categories relies on a systematic review of the corporate tax avoidance literature. Specifically, we examined all studies cited in Wilde and Wilson (2018) and the tax avoidance section of Hanlon and Heitzman (2010) and for each study, we grouped categories based on shared underlying explanations and the feasibility of implementing standard measures within a unified, broad-based sample. This process yielded six primary theories that are both prominent in the literature and empirically tractable. Identifying these theories involved significant researcher judgment.

One major theory that we omitted from the main analysis is reputation. While reputation is an important factor in prior literature, it is empirically difficult to capture, and as Wilde and Wilson (2018) note, "evidence using archival evidence is limited." The best evidence for reputational effects comes from survey responses (Graham et al. 2014), which does not lend to large-scale measurement. Some papers capture reputation inductively, such as whether executives are fired or stock prices decline after firms are accused of engaging in tax shelters (Gallemore et al. 2014; Hanlon and Slemrod, 2009), which again does not provide a clear measure for reputation. Finally, other papers use blunt proxies for reputation, such as whether they have valuable consumer brands (Austin and Wilson 2017) or appear on the Forbes Most Admired List (Gallemore et al. 2014). As we considered the available measures of reputation, we ultimately decided they could not adequately capture the underlying construct and would severely restrict our sample.

Despite these limitations, we conduct an additional test of relative importance that includes reputation proxies, given the prominence of this theory in the tax avoidance literature. We repeat the analysis from Figure 2 in the paper and include three distinct measures of reputation: (1) Forbes Most Admired List: A binary indicator of firm-year inclusion; (2) S&P Global ESG Scores: The overall firm-year score; (3) and S&P Global Tax Strategy Score: The firm-year score specific to tax strategy. Incorporating these proxies significantly restricts our sample size by nearly 80%, reducing it to 1,848 observations. As we show below, reputation ranks relatively low in terms of explanatory power: 8th out of 8 in Cash ETR regressions (Panel A) and 5th out of 8 in GAAP ETR regressions (Panel B). We also note that some of the other theory groups exhibit considerable changes compared to the main analyses, which is attributable to the 80% drop in sample size and not to the inclusion of the reputation variables.

Panel A: Shapley Values for Cash ETR Tests (Add Reputation)



Panel B: Shapley Values for GAAP ETR Tests (Add Reputation)