Do information sources matter in corporate tax avoidance? The roles of peer effects and director interlocks

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Introduction

- Since tax avoidance behavior is highly controversial and a company's attitude towards tax avoidance is easily influenced by industry peers. It is reasonable for a company to take peer actions as reference when it wants to engage in tax avoidance.
- Therefore, how tax avoidance information from peers affects a company's tax avoidance behavior is an interesting and important issue.

Introduction

- Because of the concern for information spread through board connections, it is plausible that directors' tax avoidance experience may systematically influence the association between peer effects and corporate tax avoidance.
- Moreover, prior research indicates that the information environment of peer firms in an industry is relevant to the level of public information available to peer firms (Shroff et al. 2017), we further examine how peer information environment affects the impact of peer effects and the role of director interlocks in the impact of peer effects.

Introduction

- The information environment in Taiwan is shaped by poor legal systems and weak investor protection, resulting in poor information environment.
- A large fraction of private information is information that is publicly available but hard to gather, spread, and process by the majority of the public. A reduction in the amount of publicly available information about companies or industries will foster tax avoidance arrangement.
- Such poor information environment provides a suitable setting to investigate how information sources affect corporate tax avoidance behavior.

Literature Review and Hypothesis Development

- Prior studies, coupled with the notion of social learning from peers, highlight the role of peers in explaining individual firm behavior.
- we expect that companies mimic their peer behavior of tax avoidance.
- **H_1: Peer effects are related to a firm's tax avoidance.**

Literature Review and Hypothesis Development

- Tax avoidance information from peers is an important reference for the management. Public information (peer effects) may not fulfill the need and collecting non-public information is another way to help managers to make a decision about tax avoidance.
- Directors interlocked with other peers create a significant tunnel for a company to know more detailed information about peers' behavior.
- **H_2: The relationship between peer effects and tax avoidance is more pronounced in firms with a wealth of director.**

Literature Review and Hypothesis Development

- Public information provision may act as a substitute for private information acquired through firms' disclosure. We assume that the effect of private information will be weakened under the richer peer information environment. Conversely, peer effects will not be influenced by peer information environment since it is indicative of public information released by peer firms.
- **H_{3a}: The relationship between peer effects and tax avoidance is unchanged by the level of peer information.**
- **H_{3b}: Directors' tax avoidance experience plays a more important role in influencing the impact of peer effects when peer information environment is poorer.**

Research Design

- **Empirical Model**

Modeling the association between peer effects and corporate tax avoidance (H_1)

$$TaxAvoid = \alpha_0 + \alpha_1 PeerEffects + \alpha_2 SIZE + \alpha_3 MTB + \alpha_4 EQUIN + \alpha_5 INTAS + \alpha_6 RD + \alpha_7 ROA + \alpha_8 LEV + \alpha_9 FORIN + \sum Year + \sum Industry + \varepsilon \quad (1)$$

Research Design

- **Empirical Model**

We test H_2 by considering the interaction between peer effects and directors' tax avoidance experience (*PeerEffects×DirExp) incorporated into model (2).*

$$TaxAvoid = \beta_0 + \beta_1 PeerEffects + \beta_2 DirExp + \beta_3 PeerEffects \times DirExp + \beta_4 SIZE + \beta_5 MTB + \beta_6 EQUIN + \beta_7 INTAS + \beta_8 RD + \beta_9 ROA + \beta_{10} LEV + \beta_{11} FORIN + \sum Year + \sum Industry + \mu$$

- To test H_3, we partition the sample by the median value of our proxy for peer information environments and examine whether the coefficient on *PeerEffects* and *PeerEffects×DirExp* is statistically different for both rich and poor peer information samples.

Research Design

- ***Measuring* Tax avoidance**
- The first is GAAP effective tax rate (*GETR*), defined as total income tax expense divided by pre-tax book income minus special items.
- The second measure, cash effective tax rate (*CETR*), is defined as cash taxes paid divided by pre-tax book income before special items.
- The third measure, book-tax differences (*BTD*), equals the difference between book income and taxable income.

Research Design

- **Measuring peer effects**
- We define the peer group for firm i as the subset of firms in the same industry as firm i.
- The peer effects are defined as the average peer firm tax avoidance (*PeerEffects*) excluding the focal firm.
- **Measuring directors' tax avoidance experience**
- The first measure, *Total count of getting involved in tax avoidance* (*DirExpC*), is a sum of the total number of being involved in tax avoidance in which directors of the focal firm participate in peer group learning.
- The second measure is *Percentage with tax avoidance experience* (*DirExpR*), which is the fraction of directors of the focal firm who serve on at least one peer's board.

Research Design

- **Measuring peer information environments**
- We create a composite index of two information environment measures to construct our proxy for peer information environments.
- The first measure is the earnings synchronicity (*ES*); the second measure is the percentage of listed firms (*LISTED*), all measured at the industry-year level.
- *ES* is measured as the average adjusted R-squared derived from running time-series regressions of a firm's quarterly earnings on the aggregate quarterly earnings in its corresponding industry. *LISTED* is measured as the number of listed firms scaled by the total number of public firms within an industry.

Research Design

- **Data sources and sample**
- The initial sample consists of all Taiwanese firms listed on the Taiwan Stock Exchange or the Taiwan Over-the-Counter market (GTSM, Gre Tai Securities Market) from 2006 to 2017.
- We start with 20,368 observations available in the TEJ database. After imposing necessary screens, we are left with 9,345 firm-year observations for the analysis of tax avoidance.

Main Findings-*The association between peer effects and tax avoidance*→ Table 3

	GETR	CETR	BTD
INDUGETR	0.416***		
	(9.835)		
INDUCETR		0.605***	
		(15.718)	
INDUBTD			0.654***
			(22.611)
SIZE	0.00311*	-0.00220	0.000822
	(1.837)	(-1.645)	(1.771)
MTB	0.00685***	0.00643***	-0.00120
	(11.179)	(10.847)	(-1.471)
EQUIN	0.171	0.261	0.396***
	(1.391)	(1.628)	(4.707)
INTAS	-0.00649	-0.00828	-0.0248**
	(-0.196)	(-0.235)	(-2.212)
RD	0.0180	0.0752*	0.0336**
	(0.335)	(1.852)	(2.215)
ROA	0.0464	-0.0335	0.0430
	(0.309)	(-0.185)	(0.531)
LEV	-0.0573***	-0.00835	0.0153***
	(-5.876)	(-0.589)	(3.695)
FORIN	-0.188***	0.0210	-0.0714*
	(-3.580)	(0.364)	(-1.910)
Constant	-0.169***	-0.0641***	-0.0435***
	(-6.198)	(-3.126)	(-5.254)
Observations	9345	9345	9345
R^2	0.058	0.071	0.331
Adjusted R^2	0.057	0.070	0.330
F(p-value)	**247.0(<0.001)*** **	**75.28(<0.001)*** **	**400.5(<0.001)*** **

Main Findings-The role of director interlocks in the effect of peer effect on tax avoidance→ Table 4

	GETR	CETR	BTD	GETR	CETR	BTD
INDUGETR	0.392***			0.388***		
	(9.603)			(8.534)		
INDUCETR		0.555***			0.547***	
		(14.044)			(14.296)	
INDUBTD			0.634***			0.631***
			(14.151)			(15.343)
DirExpC	0.00820**	0.0157***	0.00143***			
	(2.300)	(4.918)	(3.636)			
DirExpR				0.0862**	0.163***	0.00962***
				(2.488)	(6.442)	(2.757)
INDUGETRDirExpC	0.0283*					
	(1.557)					
INDUCETRDirExpC		0.0695***				
		(3.579)				
INDUBTDDirExpC			0.0242**			
			(1.868)			
INDUGETRDirExpR				0.311**		
				(1.690)		
INDUCETRDirExpR					0.727***	
					(4.662)	
INDUBTDDirExpR						0.266**
						(1.765)
SIZE	0.00224	-0.00349**	0.000214	0.00242	-0.00325**	0.000424
	(1.424)	(-2.402)	(0.430)	(1.493)	(-2.263)	(0.797)
MTB	0.00682***	0.00638***	-0.00122	0.00684***	0.00639***	-0.00122
	(8.439)	(9.132)	(-1.209)	(8.132)	(8.631)	(-1.123)
EQUIN	0.171	0.259	0.395***	0.171	0.260	0.396***
	(1.356)	(1.507)	(4.521)	(1.360)	(1.456)	(4.463)
INTAS	-0.00490	-0.00655	-0.0236	-0.00532	-0.00688	-0.0241
	(-0.114)	(-0.146)	(-1.498)	(-0.120)	(-0.147)	(-1.591)
RD	0.00723	0.0612	0.0270	0.00715	0.0609	0.0283*
	(0.137)	(1.409)	(1.582)	(0.129)	(1.463)	(1.712)
ROA	0.0512	-0.0259	0.0468	0.0500	-0.0280	0.0450
	(0.339)	(-0.135)	(0.574)	(0.332)	(-0.143)	(0.523)
LEV	-0.0542***	-0.00317	0.0173***	-0.0550***	-0.00407	0.0165***
	(-6.132)	(-0.237)	(4.461)	(-6.125)	(-0.278)	(4.199)
FORIN	-0.184***	0.0260	-0.0692*	-0.185***	0.0246	-0.0700*
	(-3.496)	(0.418)	(-1.711)	(-3.572)	(0.415)	(-1.765)
Constant	-0.164***	-0.0577**	-0.0360***	-0.167***	-0.0626***	-0.0386***
	(-6.380)	(-2.512)	(-4.203)	(-6.160)	(-2.961)	(-4.293)
Observations	9345	9345	9345	9345	9345	9345
R^2	0.059	0.073	0.333	0.059	0.073	0.332
Adjusted R^2	0.058	0.072	0.332	0.058	0.072	0.331
F	49.35(<0.001)***	67.79(<0.001)***	231.6(<0.001)***	48.89(<0.001)***	68.18(<0.001)***	227.9(<0.001)***

Main Findings-The impact of peer information environment on the relationship between peer effect and tax avoidance→ Table 5

	PI is poor GETR	*PI* is rich GETR	*PI* is poor CETR	*PI* is rich CETR	*PI* is poor BTD	*PI* is rich BTD
INDUGETR	0.432***	0.356***				
	(8.636)	(6.248)				
INDUCETR			0.602***	0.542***		
			(13.891)	(11.650)		
INDUBTD					0.703***	0.645***
					(25.241)	(19.810)
SIZE	0.00459***	0.00248*	-0.00247	-0.00130	0.000133	0.00147***
	(3.295)	(1.930)	(-1.461)	(-0.833)	(0.213)	(2.713)
MTB	0.00564***	0.0127***	0.00497***	0.0122***	-0.00109***	-0.00261***
	(6.550)	(6.690)	(4.754)	(5.231)	(-2.796)	(-3.225)
EQUIN	0.0161	0.544***	0.0930	0.684***	0.288***	0.700***
	(0.205)	(4.278)	(0.974)	(4.398)	(8.111)	(12.910)
INTAS	0.0111	-0.0793**	0.0129	-0.0980**	-0.0296***	-0.0355**
	(0.454)	(-2.085)	(0.436)	(-2.104)	(-2.688)	(-2.193)
RD	0.0182	-0.00760	0.114**	0.0156	0.0103	0.0480***
	(0.424)	(-0.180)	(2.181)	(0.304)	(0.529)	(2.679)
ROA	0.191**	-0.374***	0.110	-0.493***	0.121***	-0.227***
	(2.170)	(-2.796)	(1.027)	(-3.011)	(3.038)	(-3.983)
LEV	-0.0643***	-0.0553***	-0.0147	-0.00733	0.0157***	0.0168***
	(-5.397)	(-4.462)	(-1.014)	(-0.486)	(2.920)	(3.210)
FORIN	-0.189***	-0.192***	-0.00779	0.0795	-0.0839***	-0.0536***
	(-5.829)	(-3.934)	(-0.197)	(1.330)	(-5.719)	(-2.577)
Constant	-0.198***	-0.162***	-0.0645**	-0.0782***	-0.0303***	-0.0550***
	(-8.017)	(-7.111)	(-2.383)	(-3.072)	(-3.247)	(-6.725)
Observations	4596	4749	4596	4749	4596	4749
R^2	0.047	0.077	0.051	0.097	0.291	0.382
Adjusted R^2	0.045	0.076	0.049	0.095	0.290	0.380
F	45.13(<0.001)***	44.12(<0.001)***	57.50(<0.001)***	56.37(<0.001)***	339.3(<0.001)***	324.8(<0.001)***
Coefficient Comparison (χ^2 value(p value))	0.93(0.1675)		0.80(0.1856)		2.13(0.0724)*	

Main Findings-The impact of peer information environment on the role of direct interlocks in the effect of peer effect→ Table 6

Panel A: DirExpC	PI is poor GETR	PI is rich GETR	PI is poor CETR	PI is rich CETR	PI is poor BTD	PI is rich BTD
INDUGETR	0.372***	0.380***				
	(5.868)	(6.730)				
INDUCETR			0.500***	0.578***		
			(9.718)	(12.543)		
INDUBTD					0.609***	0.643***
					(16.716)	(20.433)
DirExpC	-0.00359	0.0140**	0.0169**	0.0152***	0.00124**	0.00160***
	(-0.392)	(2.048)	(2.427)	(3.112)	(2.010)	(2.865)
INDUGETRDirExpC	0.0613*	0.0284				
	(1.805)	(0.439)				
INDUCETRDirExpC			0.0786**	0.0619*		
			(2.502)	(1.888)		
INDUBTDDirExpC					0.0467**	-0.00787
					(2.109)	(-0.428)
SIZE	0.00354**	0.00174	-0.00367**	-0.00267	-0.000389	0.000810
	(2.467)	(1.283)	(-2.108)	(-1.622)	(-0.602)	(1.412)
MTB	0.00554***	0.0127***	0.00485***	0.0125***	-0.00114***	-0.00247***
	(6.437)	(6.702)	(4.640)	(5.354)	(-2.938)	(-3.057)
EQUIN	0.0140	0.545***	0.0906	0.676***	0.287***	0.695***
	(0.178)	(4.280)	(0.951)	(4.345)	(8.099)	(12.826)
INTAS	0.0126	-0.0769**	0.0133	-0.0931**	-0.0292***	-0.0325**
	(0.516)	(-2.020)	(0.451)	(-1.998)	(-2.652)	(-2.007)
RD	0.00701	-0.0167	0.0988*	0.00195	0.00484	0.0408**
	(0.162)	(-0.392)	(1.885)	(0.038)	(0.248)	(2.268)
ROA	0.201**	-0.373***	0.120	-0.483***	0.124***	-0.221***
	(2.286)	(-2.788)	(1.122)	(-2.949)	(3.133)	(-3.873)
LEV	-0.0608***	-0.0527***	-0.00901	-0.00306	0.0179***	0.0182***
	(-5.058)	(-4.232)	(-0.618)	(-0.202)	(3.299)	(3.459)
FORIN	-0.187***	-0.187***	-0.00495	0.0889	-0.0828***	-0.0487**
	(-5.768)	(-3.827)	(-0.125)	(1.486)	(-5.647)	(-2.342)
Constant	-0.183***	-0.164***	-0.0587**	-0.0720***	-0.0239**	-0.0467***
	(-7.155)	(-6.867)	(-2.119)	(-2.733)	(-2.516)	(-5.507)
Observations	4596	4749	4596	4749	4596	4749
R^2	0.049	0.078	0.053	0.099	0.393	0.383
Adjusted R^2	0.047	0.076	0.051	0.097	0.391	0.382
F(p-value)	41.56(<0.001)***	36.65(<0.001)***	48.50(<0.001)***	47.37(<0.001)***	272.8(<0.001)***	267.5(<0.001)***
Coefficient Comparison (χ^2 value)	1.78(0.0912)*		0.01(0.4698)		3.13(0.0385)**	

Main Findings-The impact of peer information environment on the role of direct interlocks in the effect of peer effect → Table 6

	PI is poor GETR	PI is rich GETR	PI is poor CETR	PI is rich CETR	PI is poor BTD	PI is rich BTD
INDUGETR	0.364***	0.384***				
	(5.643)	(6.689)				
INDUCETR			0.488***	0.558***		
			(9.302)	(11.791)		
INDUBTD					0.614***	0.636***
					(16.452)	(19.644)
DirExpR	0.00257	0.123*	0.151**	0.167***	0.00529	0.0131**
	(0.030)	(1.867)	(2.361)	(3.323)	(0.850)	(2.456)
INDUGETRDirExpR	0.517*	0.186				
	(1.626)	(0.442)				
INDUCETRDirExpR			0.860***	0.627**		
			(3.312)	(1.807)		
INDUBTDDirExpR					0.355**	-0.189
					(1.745)	(-0.976)
SIZE	0.00377***	0.00188	0.00344*	0.00176	-0.000151	0.000975*
	(2.645)	(1.416)	(1.941)	(1.086)	(-0.235)	(1.728)
MTB	0.00558***	0.0128***	-0.00493***	-0.0128***	-0.00113***	-0.00249***
	(6.481)	(6.721)	(-4.620)	(-5.352)	(-2.893)	(-3.080)
EQUIN	0.0147	0.544***	-0.104	-0.730***	0.288***	0.696***
	(0.187)	(4.273)	(-1.143)	(-4.589)	(8.126)	(12.841)
INTAS	0.0121	-0.0776**	-0.0135	0.0982**	-0.0294***	-0.0333**
	(0.496)	(-2.038)	(-0.445)	(2.050)	(-2.673)	(-2.055)
RD	0.00884	-0.0192	-0.105**	-0.00392	0.00778	0.0401**
	(0.205)	(-0.449)	(-1.962)	(-0.074)	(0.398)	(2.218)
ROA	0.197**	-0.372***	-0.112	0.549***	0.121***	-0.222***
	(2.240)	(-2.780)	(-1.084)	(3.287)	(3.049)	(-3.887)
LEV	-0.0617***	-0.0537***	0.00916	0.00435	0.0168***	0.0176***
	(-5.135)	(-4.323)	(0.615)	(0.280)	(3.112)	(3.347)
FORIN	-0.187***	-0.189***	0.00405	-0.0846	-0.0832***	-0.0500**
	(-5.767)	(-3.859)	(0.101)	(-1.380)	(-5.673)	(-2.403)
Constant	-0.188***	-0.165***	0.0655**	0.0880***	-0.0267***	-0.0489***
	(-7.340)	(-6.961)	(2.321)	(3.346)	(-2.814)	(-5.830)
Observations	4596	4749	4596	4749	4596	4749
R^2	0.049	0.078	0.052	0.096	0.392	0.383
Adjusted R^2	0.046	0.076	0.050	0.094	0.390	0.382
F	41.27(<0.001)***	36.57(<0.001)***	52.90*(<0.001)**	45.66(<0.001)***	271.8(<0.001)***	267.2(<0.001)***
Coefficient Comparison (χ^2 value)	0.35(0.2785)		0.39(0.2667)		1.95(0.0813)*	

Conclusion

- A company will have a higher level of tax avoidance if their peers in the same industry take an aggressive tax avoidance strategy.
- We also find that the effect is more pronounced when a firm's directors have more experience in tax avoidance, consistent with the spillover effect of tax avoidance behavior through shared directors.
- Furthermore, we provide evidence that private information conveyed by interlocking directors is most valuable to a focal firm when peer information environment is poor.

Conclusion

- We provide new evidence that the effects of information sources are more pervasive than previously shown, and we further show that the role that director interlocks play in the effect of peer effects varies with peer firm's informativeness not previously considered.
- One insight of our study is that private information conveyed by interlocking directors is more influential in industries with poor peer information environment, supporting the notion of the partial substitution of private information for public information as a valuable source of peer information.

A short presentation is for your reference.

Thank you.