Guiding through the Fog: Financial statement complexity and voluntary disclosure

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Outline

Motivation-theory

- The theory provides little guidance on the content or medium of the voluntary disclosure
- the theory provides little guidance on the timing of any additional voluntary disclosure.
- regardless of whether financial statement complexity stems from the complexity of the firm’s business transactions

Motivation-Empirical

- Li, 2008 argues that the reason for complexity is that managers want to obfuscate investors. Another view includes poor performance need more complex language. Bloomfield, 2008
- This paper held in the later theories, from which they argue that complexity due to the information could be eased by voluntary disclosure.
- So this paper presents this fact:lower information accessibility in mandatory disclosure (in the form of complexity) is associated with more information being released through voluntary disclosure.

Outline

Motivation

Research Question

Design

Conclusion

Research Question

- This paper examines whether managers use voluntary disclosure to mitigate these negative effects brought by financial statement complexity.

Outline

complexity and voluntary disclosure

$$VolDisc_{t+1} = \phi_0 + \phi_1 FS\_Complexity_t + \theta Controls_t + \varepsilon_t, \quad (1)$$

complexity and voluntary disclosure

- VolDisc, is the number of management forecasts issued over the twelve months following the filing of the 10-K
  In subsequent analyses, we assess the robustness of our results to using 8-K filings and firm-initiated press releases as alternative measures of voluntary disclosure
- measure financial statement complexity using the readability (ReadIndex) and length (Length) of the firm's 10-K (ReadIndex with a PCA)
- Control variables include: Size ,ROA, Loss (dummies from net income),Leverage,MTB
  …..

result of complexity and voluntary disclosure

The coefficients on our two measures of financial statement complexity are positive and both statistically and economically significant .

Table 3
Financial statement complexity and voluntary disclosure.
This table presents results from estimating the association between financial statement complexity (*FS_Complexity*) and voluntary disclosure over the twelve months following the filing of the 10-K (*VolDisc*). Columns (1) and (2) present results measuring financial statement complexity using *Readindex*, and columns (3) and (4) present results measuring financial statement complexity using *Length*. All variables are as defined in Table 1. Independent variables are transformed into decile ranks and scaled to range from 0 to 1. t-statistics appear in parentheses and are based on standard errors clustered by firm and filing date. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels (two-tail), respectively.

	Dependent variable: *VolDisc*			
	FS_Complexity = Readindex		*FS_Complexity = Length*	
Variable	(1)	(2)	(3)	(4)
FS_Complexity	0.98***	1.51***	2.90***	4.32***
	(7.40)	(9.63)	(21.32)	(22.63)
Control variables				
Size	4.62***	6.77***	3.47***	4.90***
	(20.30)	(17.10)	(16.53)	(15.20)
ROA	3.82***	2.30***	3.56***	1.77***
	(24.19)	(15.20)	(24.11)	(14.04)
Leverage	−0.05	0.69***	−0.22**	0.33**
	(−0.42)	(4.13)	(−2.20)	(2.12)
MTB	0.35**	−2.33***	0.91***	−1.47***
	(2.21)	(−10.78)	(6.06)	(−8.16)
Specialitems	−1.70***	−0.59***	−1.70***	−0.37***
	(−15.38)	(−7.49)	(−15.31)	(−5.16)
Loss	−0.48***	−0.20***	−0.84***	−0.46***
	(−5.18)	(−2.72)	(−9.81)	(−6.66)
Returns	−0.29**	0.07	−0.25**	0.12
	(−2.08)	(0.59)	(−1.98)	(1.21)
∆Returns	−0.31*	−1.10***	−0.32**	−1.30***
	(−1.90)	(−6.98)	(−2.19)	(−8.40)
Firm Effects	No	Yes	No	Yes
Observations	72,366	72,366	72,366	72,366
R^2 (%)	18.4	61.2	20.4	63.1

Figure: table3

Cross-sectional variation-liquidity

Cross-sectional variation in the relation between financial statement complexity and voluntary disclosure

1.liquidity: More complex financial statements require greater information processing which reduces liquidity, and extant research suggests that managers use voluntary disclosure to achieve a target level of liquidity

$$\text{Illiquidity}_t = \frac{|\text{R}_t|}{\text{DVolume}_t} \times 10^6 \tag{2}$$

$$\text{Spread}_t = \frac{\text{Ask}_t - \text{Bid}_t}{\text{price}_t} \times 100 \tag{3}$$

Cross-sectional variation-liquidity

Table 4
Cross-sectional tests: Changes in illiquidity around the filing of the financial statements.
This table presents results from examining whether the relation between financial statement complexity and voluntary disclosure varies with the change in illiquidity around the 10-K filing. Our model follows the specifications in Table 3, except that we interact our measures of financial statement complexity with our measures of the change in illiquidity around the 10-K filing (*ΔIlliquidity* and *ΔSpread*). All variables are as defined in Table 1. Independent variables are transformed into decile ranks and scaled to range from 0 to 1. For parsimony, we do not tabulate coefficients on control variables. *t*-statistics appear in parentheses and are based on standard errors clustered by firm and filing date. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels (two-tail), respectively.

	Dependent variable: *VolDisc*							
	FS_Complexity = ReadIndex				*FS_Complexity = Length*			
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FS_Complexity x *ΔIlliquidity*	0.85***	.	0.78***	0.73***	1.58***	.	1.49***	1.34***
	(4.79)	.	(4.42)	(4.97)	(7.01)	.	(6.62)	(7.28)
FS_Complexity x *ΔSpread*	.	0.50***	0.34***	0.24*	.	0.79***	0.50***	0.30**
	.	(3.70)	(2.62)	(1.90)	.	(4.97)	(3.20)	(2.07)
Main effects								
FS_Complexity	0.59***	0.76***	0.45***	1.06***	2.15***	2.55***	1.95***	3.54***
	(5.05)	(5.76)	(3.76)	(6.59)	(16.43)	(18.16)	(13.94)	(19.08)
ΔIlliquidity	−0.27***	.	−0.28***	−0.32***	−0.59***	.	−0.59***	−0.57***
	(−3.44)	.	(−3.63)	(−4.48)	(−7.53)	.	(−7.50)	(−7.83)
ΔSpread	.	0.01	0.07	0.11	.	−0.13**	−0.02	0.04
	.	(0.20)	(1.08)	(1.56)	.	(−2.42)	(−0.32)	(0.60)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	No	No	No	Yes
Observations	69,066	69,066	69,066	69,066	69,066	69,066	69,066	69,066
R^2 (%)	18.4	18.4	18.4	61.8	20.4	20.4	20.4	63.7

Figure: table4

Cross-sectional variation-external monitors

we interact

FS$_{C}omplexityin Eq.(1) with two measures of external monitoring. number of analysts ndnum$

Table 5
Cross-sectional tests: External monitors.

This table presents results from examining whether the relation between financial statement complexity (*FS_Complexity*) and voluntary disclosure (*VolDisc*) varies with the intensity of external monitoring. Our model follows the specifications in Table 3, except that we interact our measures of financial statement complexity with our measures of external monitoring intensity (*NAnalysts* and *NInstitutions*). All variables are as defined in Table 1. Independent variables are transformed into decile ranks and scaled to range from 0 to 1. For parsimony, we do not tabulate coefficients on control variables. *t*-statistics appear in parentheses and are based on standard errors clustered by firm and filing date. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels (two-tail), respectively.

	Dependent variable: *VolDisc*							
	FS_Complexity = ReadIndex				*FS_Complexity = Length*			
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FS_Complexity x *NAnalysts*	3.40***	.	2.61***	2.47***	6.68***	.	5.98***	6.04***
	(8.44)	.	(5.78)	(5.75)	(15.29)	.	(13.99)	(12.72)
FS_Complexity x *NInstitutions*	.	3.29***	1.61***	1.85***	.	5.67***	1.62***	3.61***
	.	(8.44)	(3.90)	(4.36)	.	(13.20)	(3.94)	(7.43)
Main effects								
FS_Complexity	−0.87***	−0.80***	−1.37***	−1.03***	−0.66***	−0.45***	−1.47***	−1.66***
	(−6.10)	(−6.20)	(−8.85)	(−5.55)	(−3.75)	(−2.60)	(−7.38)	(−7.07)
NAnalysts	2.29***	.	2.28***	−0.71**	0.87***	.	0.48**	−2.19***
	(10.00)	.	(9.04)	(−2.57)	(3.25)	.	(2.28)	(−7.46)
NInstitutions	.	5.84***	5.25***	5.36***	.	3.95***	4.67***	2.62***
	.	(17.50)	(16.88)	(14.80)	.	(11.46)	(14.93)	(7.16)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Effects	No	No	No	Yes	No	No	No	Yes
Observations	72,366	72,366	72,366	72,366	72,366	72,366	72,366	72,366
R^2 (%)	22.1	21.9	24.1	62.5	25.1	23.9	26.8	64.7

Figure: table5

Cross-sectional variation-

it varies with firm performance and the level of earnings management . we interact FS$_{C}omplexityin Eq.(1) with two measures of firm performance, ROA and Loss$

Table 6
Cross-sectional tests: Firm performance and earning management.
This table presents results from examining whether the relation between financial statement complexity and voluntary disclosure varies with firm performance and earnings management. Our model follows the specifications in Table 3, except that we interact our measures of financial statement complexity with our measures of firm performance and earnings management (*ROA*, *Loss*, and *AbAcc*). All variables are as defined in Table 1. Independent variables are transformed into decile ranks and scaled to range from 0 to 1. For parsimony we do not tabulate coefficients on control variables. *t*-statistics appear in parentheses and are based on standard errors clustered by firm and filing date. ***, **, and * denote statistical significance at the 0.01, 0.05, and 0.10 levels (two-tail), respectively.

	Dependent variable: *VolDisc*									
	FS_Complexity = Readindex					*FS_Complexity = Length*				
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
FS_Complexity x ROA	4.17***	.	.	3.94***	2.40***	4.31***	.	.	3.85***	3.07***
	(10.66)	.	.	(10.24)	(6.95)	(9.16)	.	.	(8.49)	(7.52)
FS_Complexity x Loss	.	−1.64***	.	−1.40***	−0.63***	.	−3.09***	.	−2.80***	−1.80***
	.	(−8.04)	.	(−6.85)	(−3.56)	.	(−14.31)	.	(−13.67)	(−9.04)
FS_Complexity x AbAcc	.	.	−1.20***	−1.25***	−0.53***	.	.	−2.06***	−2.17***	−0.92***
	.	.	(−4.57)	(−4.79)	(−2.60)	.	.	(−7.74)	(−8.31)	(−4.29)
Main effects										
FS_Complexity	−0.93***	1.83***	1.88***	0.29	1.02***	1.28***	4.49***	4.57***	3.51***	4.53***
	(−4.82)	(9.34)	(8.17)	(1.09)	(3.78)	(5.45)	(23.13)	(19.29)	(11.62)	(13.86)
ROA	1.35***	3.53***	3.52***	1.48***	1.09***	0.72***	3.15***	3.03***	1.08***	−0.04
	(5.97)	(20.21)	(20.09)	(6.56)	(5.08)	(3.15)	(19.45)	(19.04)	(4.80)	(−0.20)
Loss	−0.63***	0.23*	−0.61***	0.07	0.04	−1.14***	0.50***	−1.07***	0.32***	0.36***
	(−6.15)	(1.85)	(−5.96)	(0.64)	(0.40)	(−12.51)	(4.83)	(−11.29)	(3.29)	(3.32)
AbAcc	.	.	0.21*	0.25**	0.42***	.	.	0.60***	0.61***	0.53***
	.	.	(1.73)	(2.07)	(3.64)	.	.	(6.03)	(6.32)	(5.04)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Effects	No	No	No	No	Yes	No	No	No	No	Yes
Observations	59,068	59,068	59,068	59,068	59,068	59,068	59,068	59,068	59,068	59,068
R^2 (%)	18.4	18.1	18.0	18.8	61.1	20.8	20.9	20.5	21.5	63.5

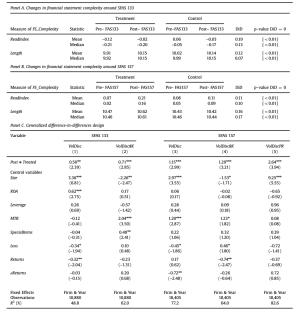
Figure: table6

Two quasi-natural experiments

we examine changes in financial statement complexity and voluntary disclosure around the adoption of SFAS 133 (Accounting for Derivatives) and the adoption of SFAS 157 (Fair Value Measurements) using a generalized difference-in-differences design. Both rules require extensive disclosures about fair value measurements, which we expect will increase the complexity of affected firms' financial statements–and if our hypotheses above are correct–will also increase voluntary disclosure.

$$\text{VolDisc}_{t+1} = \varphi_0 + \varphi_1 \text{ Post}_t * \text{ Treated } + f + \delta + \boldsymbol{\theta} \text{ Controls}_t + \varepsilon_t \quad (4)$$

Result of Two quasi-natural experiments



Panel A. Changes in financial statement complexity around SFAS 133

		Treatment		Control		
Measure of FL_Complexity	Statistic	Pre- FAS133	Post - FAS133	Pre-FAS133	Post - FAS133	DiD	p-value DiD = 0
Readindex	Mean	−0.12	−0.02	0.06	−0.03	0.09	[< 0.01]
	Median	−0.20	−0.20	−0.09	−0.17	0.11	[> 0.01]
Length	Mean	9.92	10.15	10.02	10.14	0.12	[< 0.01]
	Median	9.90	10.15	9.99	10.15	0.07	[< 0.01]

Panel B. Changes in financial statement complexity around SFAS 157

		Treatment		Control			
Measure of FL_Complexity	Statistic	Pre- FAS157	Post- FAS157	Pre- FAS157	Post - FAS157	DiD	p-value DiD = 0
Readindex	Mean	0.07	0.21	0.08	0.31	0.11	[< 0.01]
	Median	0.02	0.16	0.05	0.09	0.01	[> 0.01]
Length	Mean	10.47	10.62	10.43	10.42	0.06	[> 0.01]
	Median	10.48	10.55	10.46	10.44	0.17	[< 0.01]

Panel C. Generalized difference-in-difference design

Variable	SFAS 133		SFAS 157	
	FASTest (1)	VolStockR (2)	FASTest (3)	VolStockR (4)
Post x Treated	0.58***	0.77***	1.17***	1.28***
	(2.38)	(2.85)	(2.99)	(3.21)
Control variables				
Size	3.36***	−2.28**	2.97***	−1.53*
	(6.81)	(−2.47)	(3.55)	(−1.71)
ROA	0.02***	0.17	0.06	−0.02
	(2.73)	(0.91)	(0.57)	(−0.06)
Leverage	0.28	−0.57	0.28	0.09
	(0.68)	(−1.42)	(0.44)	(0.18)
MTB	−0.12	2.24***	1.18***	1.13*
	(−0.41)	(3.59)	(2.87)	(1.82)
Specialdiverse	−0.04	0.48**	0.22	0.32
	(−0.35)	(2.41)	(1.06)	(1.20)
Sales	−0.34*	0.30	−0.48*	0.48*
	(−1.94)	(0.48)	(−1.80)	(1.80)
Returns	−0.10**	−0.13	0.17	−0.34**
	(−2.04)	(−1.31)	(0.62)	(−2.47)
sReturns	−0.03	0.20	−0.72**	−0.28
	(−0.15)	(0.68)	(−2.48)	(−0.64)
Fixed Effects	Firm & Year	Firm & Year	Firm & Year	Firm & Year
Observations	9,828	9,828	7,920	7,920
R^2 (%)	48.8	62.0	57.2	64.5

Figure: table7

Robusteness test-1

Fama and MacBeth (1973) regression

$$\text{VolDisc}_{t+1} = \varphi_t + \beta_t \, \text{FS}_Complexity \, \text{FS}_Complexity \, \text{FS}_Complexity_t + \boldsymbol{\theta_t} \, \text{Controls}_t + \varepsilon_t \quad (5)$$

If the relation between financial statement complexity and voluntary disclosure is driven by time trends, we would not expect to observe a cross-sectional relation within a given year

Robustness test-2

we estimate the relation between financial statement complexity and voluntary disclosure using a propensity score matched sample of firms with similar levels of economic activity.

We find that firms in the top decile of financial statement complexity have greater voluntary disclosure than their matched sample counterparts, suggesting that differences in economic activity related to mergers, RD, etc. are unlikely to explain our results.

Outline

Conclusion

This evidence suggests that lower information accessibility in mandatory disclosure (in the form of complexity) is associated with more information being released through voluntary disclosure,
a few potentially promising avenues for future research.

- Measurement of complexity
- Conceptualizing information processing costs (scriptability)
- Contexts outside of the 10-K
- Moving beyond valuation-based explanations

References I

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