Firms' Disclosure Policy and Capital Investments: Evidence from Regulation Fair Disclosure

Online Appendix: Private Earnings Guidance

To identify pre-FD private disclosers, we follow Wang (2007) and Matsumoto (2002) to first extract a firm's total earnings guidance. The model includes four steps:

$$\Delta EPS_{kjtq}/price_{jit-1} = \alpha_{ijt} + \beta_{1ijt}(\Delta EPS_{kjtq-1}/price_{kjt-1,q-1}) + \beta_{2ijt}CRET_{jit} + \varepsilon_{ijt} \tag{A.1}$$

$$E\left[EPS_{ijt,q}\right] = \left[\alpha_{ijt-1,q} + \beta_{1ijt-1}\left(\Delta EPS_{ijtq}/price_{kjt-1,q-1}\right) + \beta_{2ijt}CRET_{ijt}\right] \times price_{kjt-1,q} \tag{A.2}$$

$$E\left[F_{itjq}\right] = EPS_{ijt-1,q} + E\left[\Delta EPS_{ijtq}\right] \tag{A.3}$$

$$UF_{ijtq} = F_{ijtq} - E\left[F_{ijtq}\right] \tag{A.4}$$

Eq. (A.1) estimates the expected seasonal change, $\Delta EPS_{ijt,q} = EPS_{ijt,q} - EPS_{ijt-1,q}$ in analyst forecasts for firm i in industry j during quarter q of year t as a function of the seasonal change in last quarter's earnings per share, $\Delta EPS_{ijt,q-1} = EPS_{ijt,q-1} - EPS_{ijt-1,q-1}$ and firm-specific daily excess returns, $CRET_{ijtq}$ —cumulated from three days after the year t - 1's quarter q earnings announcement to 20 days before year t's quarter q earnings announcement—to control for other information available to analysts for forecasting earnings.[1] Eq. (A.1) is estimated separately for each firm–year by using all firm–quarters in year t from firm i's four-digit SIC code industry j, excluding firm i's data (for industry–years with more than 20 observations).

In Eq. (A.2), parameter estimates derived from the previous quarters are used to estimate firm i's expected analyst forecast, $E\left[EPS_{ijt,q}\right]$ in the current quarter. Eq. (A.3) adds the expected change in analyst forecast from Eq. (A.2) to firm i's actual earnings per share from the same quarter in the prior year, to yield the expected analyst forecast (absent earnings guidance) for the current quarter, $E\left[F_{itjq}\right]$. In Eq. (A.4), Matsumoto (2002) defines total earnings guidance (from both public and private disclosures) as the unexpected analyst forecast, UF_{ijtq}, which is the difference between the most recent analyst consensus forecast and the expected analyst forecast:

$$\left|UF_{iq}\right| = \gamma_{0i} + \gamma_1 Std\Delta EPS_{iq} + \gamma_2 Loss_{iq} + \gamma_3 \#PublicDisclosure_{iq} + \mu_{iq} \tag{A.5}$$

To extract private earnings guidance from total earnings guidance, Wang (2007) teases out the factors other than private earnings guidance that contribute to the volatility of $|UF|$ in Eq. (A.5). These factors include earnings volatility, the incidence of losses, and the number of earnings-related public disclosures issued each quarter. The author measures earnings volatility ($Std\Delta EPS$) as the standard deviation of seasonal changes in earnings per share during the previous three years. Next, the author measures the incidence of losses through an indicator variable (*Loss*) that equals one if a firm reports a loss in the current quarter and zero otherwise. Finally, to account for the portion of total earnings guidance that is public, Wang controls for the number of public disclosures of earnings-related information (*# PublicDisclosure*) issued for each quarter. The public disclosure data are from the CIG database and include voluntary

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[1] To the extent that *CRET* may not be free of earnings guidance as intended, Wang (2007) replaces firm-specific cumulative daily excess returns with industry cumulative daily excess returns excluding firm i. The resulting firm classification, controlling for industry returns and the original classification based on firm-specific returns, has a correlation of 0.92. Thus, we keep the firm-specific returns in the tests.

earning-related disclosures on future earnings; cash flow; earnings before interest, taxes, depreciation, and amortization; and earnings including goodwill amortization. Wang defines the unexplained portion of $|UF|$ (the sum of the absolute value of the residual μ_{iq} from Eq. (A.5) and the firm-specific intercept γ_{0i} as private earnings guidance to analysts from firm i in quarter q.

Wang (2007) then computes the average private earnings guidance for each firm–year and ranks firms in each industry–year from 1996 to 1999 (the pre-FD period). A firm with the least private earnings guidance receives the lowest ranking; so, a higher ranking indicates more private earnings guidance. A firm is classified as a pre-FD private discloser if its annual ranking is in the top 40% of the distribution in each of the firm's available years, to ensure that the firm's rankings are relatively stable and thus reflect the general tendency of its disclosure behavior. Firms that are not identified as pre-FD private disclosers are instead classified as pre-FD public disclosers if their quarterly average number of earnings-related public disclosures (from the CIG database) is 30% more than the average of all pre-FD private disclosers. Wang (2007) further classifies firms as pre-FD non-disclosers if their quarterly average number of earnings-related public disclosures is 30% less than the average of all pre-FD private disclosers. Post-FD, private disclosure firms can either switch from a private disclosure channel to a public one or stop disclosing. A pre-FD private discloser that increases its quarterly average number of public disclosures by at least 30% is classified as a post-FD new public discloser and that does increase as a post-FD new non-discloser.[2] Wang assumes pre-FD public disclosers will continue to be post-FD public disclosers. The author's study does not provide further analysis of pre-FD non-disclosers.[3]

All measures in our replication are similar to those in Wang (2017) except for public disclosures. We rely solely on the reported management forecasts in the CIG database. Thus, the number of public disclosures may be lower than the actual figures, which would cause an underestimation of the number of new public disclosers and an overestimation of the number of new non-disclosers. This result will bias against finding a difference in capital investment constraints between new non-disclosers and new public disclosers. Panel C lists 520 private disclosers and 592 public disclosers, pre-FD. Panel D shows 114 new public disclosers post-FD, 228 new non-disclosers post-FD, and 429 public disclosers throughout the whole period.[4]

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[2] Only four pre-FD private disclosers increase their average number of public disclosures by less than 30%.
[3] The terms pre-FD public disclosers and pre-FD non-disclosers are used interchangeably with public disclosers and non-disclosers.
[4] Most of the missing firms from pre-FD to post-FD were acquired. A few firms were delisted by exchanges and a very few voluntarily went private.

Table A.1

Estimate of Private Earnings Guidance

Panel A: Descriptive statistics for the private earnings guidance model

Variable	N		Mean		Std. dev.	
	Wang	Rep	Wang	Rep	Wang	Rep
$\left|UF_{iq}\right|$	20,218	23,179	0.11	0.11	0.14	0.13
$Std\Delta EPS$	20,218	23,179	0.13	0.13	0.16	0.16
$Loss$	20,218	23,179	0.21	0.19	0.41	0.4
# $PublicDisclosure$	20,218	23,179	0.23	0.18	0.6	0.4

Panel B: Estimation of private earnings guidance

Variable	N		Coeff. estimate		Std. dev.	
	Wang	Rep	Wang	Rep	Wang	Rep
$Std\Delta EPS$	20,218	23,179	0.08	0.088	0.01	0.01
$Loss$	20,218	23,179	0.02	0.028	0	0
# $PublicDisclosure$	20,218	23,179	0.02	0.012	0	0

Panel C: Descriptive statistics of the quarterly average number of earnings-related public disclosures by type of discloser during the pre-FD period (1996-1999)

Type of discloser	N		Mean		Std. dev.	
	Wang	Rep	Wang	Rep	Wang	Rep
Pre-FD private discloser	512	520	0.18	0.18	0.21	0.4
Pre-FD public discloser	538	592	0.44	0.41	0.23	0.58
Pre-FD non-discloser	937	1047	0.05	0.05	0.05	0.24

Panel D: Changes in the quarterly average number of earnings-related public disclosures

Type of discloser	N		Pre-FD		Post-FD	
	Wang	Rep	Wang	Rep	Wang	Rep
Post-FD new public discloser	150	114	0.21	0.18	0.99	0.92
Post-FD new non-discloser	191	228	0.18	0.14	0.04	0.04
Pre-FD public discloser	434	425	0.45	0.41	1.13	0.99

This table provides the results of the replication of Wang's (2007) identification of firms based on their disclosure policies. Panel A provides descriptive statistics for the variables used in Eq. (5). Panel B provides the analysis for deriving a firm's private earnings guidance from the total earnings guidance. Panel C displays the statistics for the number of earnings-related public disclosures for new public disclosers, public disclosers, and new non-disclosers in the pre-FD period (1996–1999). Panel D compares these three types of firms for changes in earnings-related public disclosures around Reg FD. All the panels display the replication results along with Wang's original results. The variable UF_{ijtq} is the difference between the most recent analyst consensus forecast and the expected analyst forecast; $Std\Delta EPS$ is the standard deviation of seasonal changes in earnings per share during the

previous three years; *Loss* equals one if the firm reports a loss in the current quarter and zero otherwise; and *# PublicDisclosure* measures the number of public disclosure items issued for each quarter from the CIG database, including voluntary earning-related disclosures on future earnings; cash flow; earnings before interest, taxes, depreciation, and amortization; and earnings including goodwill amortization.