

Die Auswirkung von Leaks auf die freiwillige Berichterstattung von Unternehmen

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Information Leaks and Voluntary Disclosure

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- ► Although the availability of external information has largely increased throughout the last decades, empirical evidence shows that voluntary firm disclosure is still a major source of value-relevant information (e.g. Beyer et. al. (2010)).
- ► Another information channel which has become increasingly important in corporate practice is information leakage.
 - ► In the recent past, several cases of information leakage received public attention.
 - ► In 2017, the daughter of an Apple employee uploaded a video showing details of the new iPhone X which had not been announced to the public at that time.
 - ► A few years earlier, an Apple employee had lost the prototype of a cellular phone in a bar.
 - ► Another example is the leakage of pending M&A transactions.
 - ► Evidence that in 8.6% of all deals information has leaked before the announcement of negotiations

Motivation



- Leaks can differ considerably in the amount of information
 - In some cases, the details of the M&A negotiations are revealed to the public.
 - In other cases, investors only learn the fact that a transaction is planned.
- ► A joint feature of all information leaks is that proprietary information must be available within the firm to be leaked to outsiders.
- ► In this regard, information leaks differ from other information channels. For instance, analyst information is not necessarily available to the firm management, but might also be the result of analysts' knowledge and their expertise in forecasting industry performance.

Research Question & Results



- Study the effect of information leaks on the firm's willingness to voluntarily disclose proprietary information
- ► Results
 - Our results show that more information does not necessarily foster voluntary disclosure. In contrast, as the precision of information leaks increases, managers increasingly refrain from disclosing their private information.
 - ► We also find that a higher likelihood of an information leak does not necessarily motivate more voluntary disclosure.
 - Results only hold for leaks

Related Literature



- ► Unraveling result (Grossman and Hart (1980), Grossman (1981) and Milgrom (1981), ...)
- ► Disclosure costs (Verrecchia (1983))
- ► Uncertain information endowment (Dye (1985), Jung and Kwon (1988))
- Investor sophistication (Dye (1998)) higher proportion of informed investors leads to more voluntary disclosure
- Suijis (2007) manager is uncertain about the investors' reaction





- Firm with uncertain terminal value \tilde{x}
- ► Firm is run by a risk-neutral manager who potentially receives private information about the terminal value
- Opportunity to truthfully report this information to the firm's investors
- ► Risk-neutral investors assign a market price to the firm
- ► Prior beliefs about the terminal value \tilde{x} , represented by a c.d.f. *F* with bounded support $[\underline{x}, \bar{x}]$ and mean μ
- ▶ For $y \in [\underline{x}, \overline{x}]$ we denote $E_y \equiv E[\widetilde{x}|x \leq y]$ $(dE_y/dy < 1)$



Information of the manager and disclosure decision

- ► With probability p ∈ [0, 1] the manager stays uninformed about the actual firm value
- ► However, with probability 1 p she privately learns the actual firm value x
- Information set as $\Omega_M \in \{x, \emptyset\}$
- ► Upon becoming aware of the firm value x, the manager is able to disclose it credibly and without incurring any cost (d(x) ∈ {x, ND})
- She is unable to make a credible disclosure that she did not observe x

Information leak and pricing decision

- With probability 1 q, an information leak occurs
- Information leak is precise with probability $\psi \in [0,1]$
 - ► If an information leak is precise, investors are able to discern the actual firm value *x*
 - Imprecise information leak reveals the manager's information endowment, but does not directly convey the information content
- Pricing decision $P_{\Omega_I} = E[\tilde{x} \mid \Omega_I]$, where $\Omega_I \in \{x, \Box x, \Diamond x\}$
 - ► Ω_I = ◊x investors have not received any information, neither from the manager nor from an information leak
 - ► Ω_I = □x investors are only informed about the information endowment





Overview









Lemma 1 In any pure-strategy equilibrium of the game, the manager follows a threshold strategy. There exists a disclosure threshold $y \in [x, \mu]$ such that

$$d(x) = \begin{cases} x & if \ x > y \\ ND & else \end{cases}$$
(5)





Lemma 2 (Existence and uniqueness) There is a unique equilibrium of the disclosure game. This equilibrium is characterized by a disclosure threshold $y \in [\underline{x}, \mu]$ and has the following characteristics:

- a) Informed managers disclose if and only if they observe that the firm value is above the disclosure threshold, i.e. x > y.
- b) Upon full revelation, the market price is identical to the actual firm value, $P_x(x) = x$. The investors assign a market price $P_{\Box x} = E_y$ if they only learn about the information endowment. If they don't receive any information, the market price is

$$P_{\diamond x} = \frac{p}{p + (1 - p) \cdot q \cdot F(y)} \cdot \mu + \frac{(1 - p) \cdot q \cdot F(y)}{p + (1 - p) \cdot q \cdot F(y)} \cdot E_y.$$
(7)





Proposition 1 (Disclosure and the precision of leaks) The disclosure threshold increases in the precision of potential disclosure leaks, i.e. $dy/d\psi > 0$ for 1 - q > 0. In other words, as information leaks increasingly reveal the content of the manager's private information, the extent of voluntary disclosure decreases.











Proposition 2 (Disclosure and the likelihood of leaks) A higher probability of information leaks 1 - q has ambiguous effects on the disclosure threshold y.

a) A unique value $q^{\dagger} \in [0, 1]$ exists such that y is increasing in 1 - q for $1 - q \le 1 - q^{\dagger}$ and decreasing for $1 - q > 1 - q^{\dagger}$.





b) The value 1 − q[†] is increasing in ψ: The region in which a higher probability of an information leak impedes voluntary disclosure becomes larger if ψ increases. In the extreme cases of precise and completely imprecise leaks, the disclosure threshold is i) monotonically decreasing in 1 − q if information leaks are imprecise (ψ = 0), ii) monotonically increasing in 1 − q if information leaks are precise (ψ = 1).







Leaks vs. Additional information





Conclusions



- Interaction of probability and precision of information leaks
- Voluntary disclosure can increase or decrease in the probability of the leak
 - In case of additional information this is not the case disclosure always increases with probability of additional information
- ► Higher precision of the leak decreases voluntary disclosure