

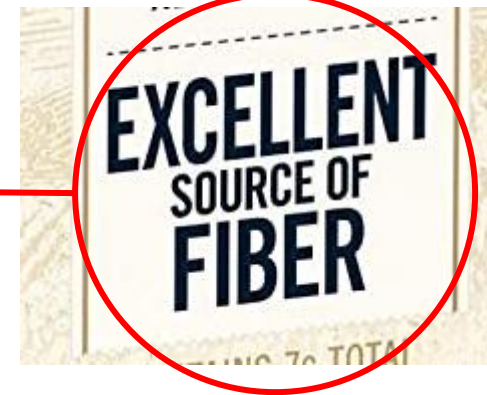
A Theory of Regulatory Fine Print

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JPMorgan, Bank of America and Citigroup tier-one ratios to rise about 1 percentage point

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Fine print: measurement of capital ratio (capital/risk-weighted assets)

- Which assets count as “capital”?
- How are assets risk-weighted to compute the denominator?

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US proposes raising vehicle fuel economy standards to 58 miles per gallon by 2032

By **David Shepardson**

July 31, 2023 1:30 PM GMT+2 · Updated 24 days ago



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Fine print:

- Different requirements for different vehicle types (“weight notches”).
- “Mpg bonuses” for certain vehicle types (e.g. “flexible fuel vehicles”)

Why do we care about the regulatory fine print?

- The regulatory **fine print** may
 - **reduce** the **effectiveness** of the regulation
 - do not reduce bank risk / emissions sufficiently
 - lead to **distortions**
 - banks may load on certain assets with excessively low risk weights (e.g., sovereign debt in Europe pre-crisis (Pagano, 2014))
 - inefficient technological choices by automakers (e.g., vehicle size (Ito and Sallee, 2018), wasteful flexible fuel (Anderson & Sallee, 2011))
 - **reduce** regulator **accountability**

Research questions & how we address them

How does the possibility of **hiding regulation in the fine print** affect regulatory **outcomes** and regulator **accountability**?

What can **regulatory reform** do about it?

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What can **regulatory reform** do about it?

Model:

- Regulator with **reputational concerns**
- Can **hide** some regulatory items in the **fine print**

The model

Timeline, players, and actions

- Dynamic model: $t=1,2,3,\dots$
- In period t ,
 - the period- t “voter” (legislature / elected official) reelects / replaces the regulator
 - the period- t regulator sets the period’s regulation

Observable regulation and the fine print

- The regulator sets the regulation of a “firm” (sector / supplier)
- The regulation has two dimensions:
 - l (lump sum transfer to the firm) \rightarrow observable by the voter
 - q (quality standard) \rightarrow set in the fine print (not observable by the voter)
- The regulation determines:
 - Voter’s utility: $v(l, q) = w(q) - l$ ($w' > 0, w'' < 0$)
 - Firm’s profits: $a(l, q) = l - c(q)$ ($c' > 0, c'' > 0$)
 - (l, q) must meet the firm’s participation constraint (PC): $a(l, q) \geq \underline{a}$

Good and bad regulators

- The regulator can be in office for **up to two terms**

- Per-period utility:
$$\underbrace{v(l, q)}_{\text{voter's utility}} + \underbrace{\theta f(a(l, q))}_{\text{firm's profits}} + \underbrace{\delta_\theta}_{\text{utility from holding office}}$$
 $f' > 0, f'' < 0$

- “Good” and “bad” regulators:

- $\theta \in \{g, b\}$, $0 \leq g < b$

- Regulator’s ideal regulation (preferred regulation satisfying firm’s PC):

- $q_g^* = q_b^* = q^*$ (surplus-maximizing quality standard)

- $l_b^* > l_g^* \rightarrow v_g^* = v(l_g^*, q^*) > v_b^* = v(l_b^*, q^*)$

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- If regulator can serve one more term, the voter observes past l 's and decides whether to reelect / replace the regulator
- We model the voter's choice using a standard probabilistic voting approach → voter's choice determined by
 - difference Δ between expected utilities from reelection / replacement
 - random bias for the incumbent $i \sim U \left[-\frac{1}{2A}, \frac{1}{2A} \right]$
- Probability of reelection $\rho = \Pr(\Delta + i > 0) = \int_{-\Delta}^{\frac{1}{2A}} A di = \frac{1}{2} + A\Delta$
- A = accountability

Equilibrium

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- Choice of q by regulator:
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- Choice of q by regulator:
 - not observable
 - takes time to impact the voter's utility
- choice of q does **not** affect regulator's reputation
- θ -regulator sets q that maximizes her utility given her choice of l : $q(l, \theta)$
- the only strategic variable is l

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- In second term, regulator chooses her ideal regulation
 - We can reduce the model to one in which the **only** action by the regulator is the choice of first-term l
 - $v_g^* > v_b^*$ \rightarrow voter prefers to reelect the good regulator \rightarrow **reputational concerns**
 - \rightarrow lowering l is less costly for g (single-crossing condition of regulator's preferences) $\rightarrow g$ will try to **signal** her type by **reducing** l

Equilibrium definition

- Regulator could condition choice of l on history of l 's and voters' choices
- We restrict regulator's strategies to be **stationary** (Banks and Sundaram (1998), Duggan (2017), Kartik and Van Weelden (2019)): first-term choice of l depends **only** on regulator's type \rightarrow regulator's **strategy** simply (l_g, l_b)
- Equilibrium definition: PBE satisfying criterion D1
 - Voters' belief $\mu(l)$ that the regulator is good is correct on the equilibrium path (and satisfies criterion D1 off-path)
 - Voters' vote according to ρ given beliefs μ and regulator's strategy
 - l_θ maximizes θ -regulator's expected utility given ρ

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Good regulator (**not** the **bad** one) uses the **fine print** to distort the quality standard to offset public signaling

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- If $g > 0$, there can be **good reputation** in equilibrium (voter better off)

Signaling and reelection probability

- Signaling by the good regulator affects the voter's expected utility from replacing the incumbent → attractiveness for the voter of replacing the regulator
- With **bad** (**good**) reputation, voter's incentive to replace the incumbent **decreases** (**increases**) → incumbent's reelection probability **increases** (**decreases**)

Implications for regulatory reform

Accountability

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 - **Perfectly aligned regulator** ($g = 0$) → voter **worse off** and **offsetting effect** on reelection probability of bad regulator

Transparency

- We model transparency as the **number of observable regulatory dimensions**
- **Opaque** regime: **one** observable dimension, **two** unobservable dimensions
 - Identical to the model so far (except that firm compensated by adjusting the two unobservable dimensions in the fine print)
- **Transparent** regime: **two** observable dimensions, **one** unobservable dimension
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- Increased transparency
 - **greater cost** of mimicking → easier for g to separate → **smaller reduction in l** :
 - **good** (**bad**) for voters if **bad** (**good**) reputation
 - less need to compensate the firm in the fine print, but more costly compensation
 - net effect depend on whether good / bad reputation and the extent of signaling

Conclusions

- Reputational concerns by regulators
 - Lead “good” regulators to signal their type through public part of the regulation
 - But introduce offsetting distortions in the fine print
 - Net effect on voter may be positive (good reputation) or negative (bad reputation)
 - Reputation is bad when good regulators care only about voters
 - Signaling by good regulators also affects incumbents’ reelection probability (dynamic effect)
- Implications for regulatory reform → accountability, transparency have side effects:
 - change extent of signaling through public dimension
 - offsetting changes in the fine print and regulators’ reelection probability

Thanks!

Contribution to the literature

- Political economy literature on “pandering” and populism
 - Acemoglu et al. (2013), Canes-Wrone et al. (2001), Maskin and Tirole (2004), Kartik and Van Weelden, (2019a,b)
 - add unobservable fine print
- Collusion in three-tiered contracting relations (principal (representative voter) – supervisor (regulator) – agent (firm))
 - Tirole (1986), Laffont and Tirole (1991),... Hiriart and Martimort (2012), Khalil et al. (2013), Kundu and Nilssen (2020)
 - no reputation, focus on (possibly complex) contracts for regulator
 - Leaver (2009) (reputation about competence and “squacking” by regulated firms)
- Hidden executive pay
 - Dasgupta and Noe (2019), Ruiz-Verdú and Singh (2021)
 - different context, dynamic model