Interaction of voluntary disclosure and earnings management

A theoretical perspective

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Voluntary Disclosure and Earnings Management

2 ways to think about it

How does voluntary disclosure affect/is affected by earnings management in mandatory reports?

Do firms “manage” voluntary disclosures (such as earnings forecasts)? And, if so, how?

Voluntary Disclosure and Earnings Management

Modeling tools

- **A simple model of earnings management (mandatory reports)**
- **Voluntary disclosure: the unraveling result & how to overcome it**
- **Putting it together**

Earnings Management

A simple model

$$\max \quad P(r) \quad - \quad C(r,x)$$

$$\underbrace{r - 1}_{\text{Stock price}} \quad - \quad \underbrace{\tfrac{1}{2}(r-x)^2}_{\text{Cost of earnings management}}$$

FOC: $1 - (r - x) = 0$

$$r(x) = x + 1$$
$$P(r) = E[\tilde{x} \mid r] = r - 1$$

r: reported earnings

x: "true" earnings

"true" value of the firm is x

Earnings Management

A simple model: Truthful reporting in equilibrium

$$\max \quad P(r) \quad - \quad C(r,x)$$

$$r - 1 \quad - \quad 2|r - x|$$

Stock price

Cost of earnings management

$$r(x) = x$$

$$P(r) = E[\tilde{x} \mid r] = r$$

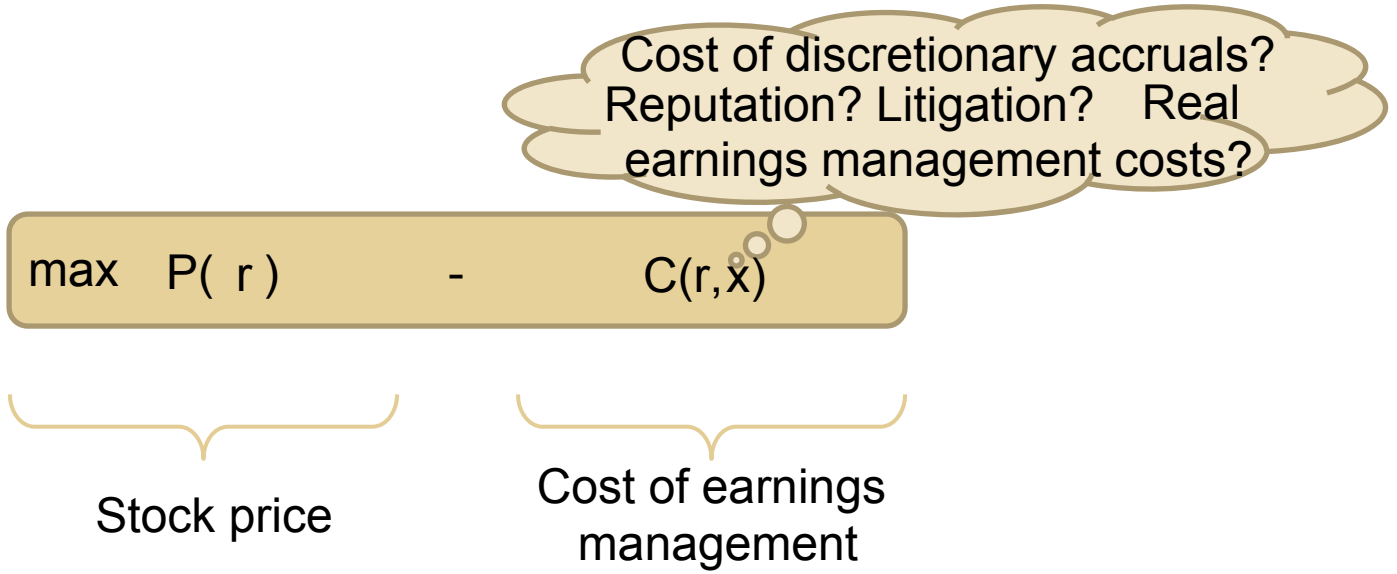
r: reported earnings

x: "true" earnings

"true" value of the firm is x

Earnings Management

A simple model: What are C(r,x)?



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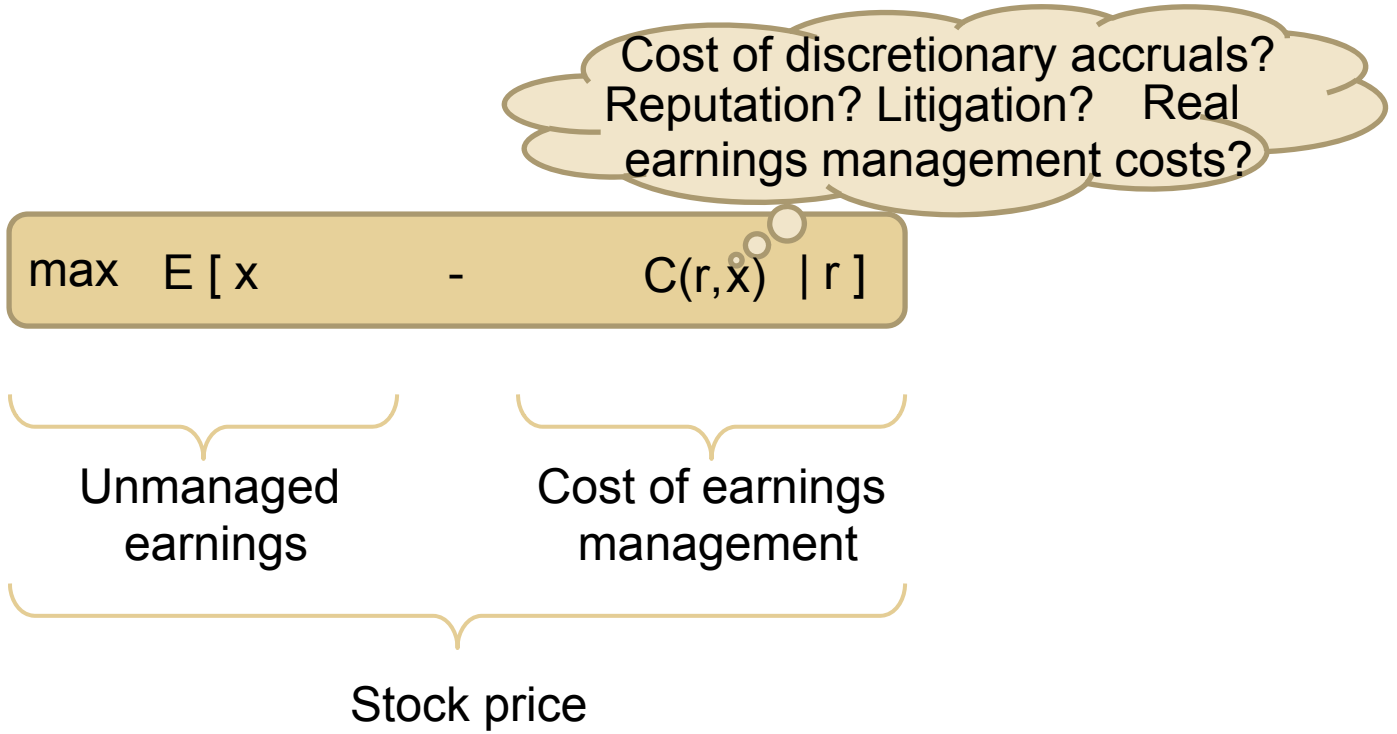
Earnings Management

A simple model: What are C(r,x)?



r: reported earnings

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Earnings Management

A simple model: Loss of information

$$\max \quad P(r) \quad - \quad C(r, x, \eta)$$

$$b_0 + b_1 r \quad - \quad \tfrac{1}{2}(r - x - \eta)^2$$

Stock price

Cost of earnings management

FOC: $b_1 - (r - x - \eta) = 0$

$$r(x) = b_1 + x + \eta$$

$$P(r) = E[\tilde{x} \mid r] = \mu_x + \frac{\sigma_x^2}{\sigma_x^2 + \sigma_\eta^2}(r - b_1 - \mu_x)$$

r: reported earnings

x: "true" earnings

"true" value of the firm is x

Earnings Management

A simple model: Loss of information (cont.)

$$\max \; \eta^* P(r) \; - \; C(r,x)$$

$$\eta^*(b_0 + b_1 r) \; - \; \tfrac{1}{2}(r-x)^2$$

Stock price

Cost of earnings management

FOC: $b_1 \eta - (r - x) = 0$

$$r(x) = b_1\eta + x$$

$$P(r) = E[\tilde{x} \mid r] = \mu_x + \frac{\sigma_x^2}{\sigma_x^2 + b_1^2\sigma_\eta^2}(r - \mu_x)$$

r: reported earnings

x: "true" earnings

"true" value of the firm is x

Earnings Management

A simple model: Summary

- **Significance of marginal costs**
- **Nature of misreporting costs**
- **Loss of information**

Voluntary Disclosure and Earnings Management

Modeling tools

- A simple model of earnings management (mandatory reports)
- **Voluntary disclosure: the unraveling result & how to overcome it**
- Putting it together

Voluntary Disclosure

The unraveling result: How voluntary is voluntary disclosure?

Unraveling Result		Grossman (1981) Milgrom (1981)
(1) Disclosures are costless	⟺	Jovanovic (1982) Verrecchia (1983)
(2) Investors know that firms have, in fact, private information	⟺	Dye (1985) Jung/Kwon (1988)
(3) Firms know how investors will interpret the disclosure	⟺	Dutta/Trueman 2002 Fishman/Hagerty 2003
(4) Managers want to maximize share price	⟺	Einhorn (2007)
(5) Firms can credibly disclose their private information	⟺	Korn (2004) Beyer/Guttman (2012)
(6) Firms cannot commit ex-ante to a specific disclosure policy.	⟺	Vives 1984 Goex/Wagenhofer 2009
⇩		⇩
Full disclosure		Partial disclosure

Voluntary Disclosure and Earnings Management

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Voluntary Disclosure and Earnings Management

A simple model

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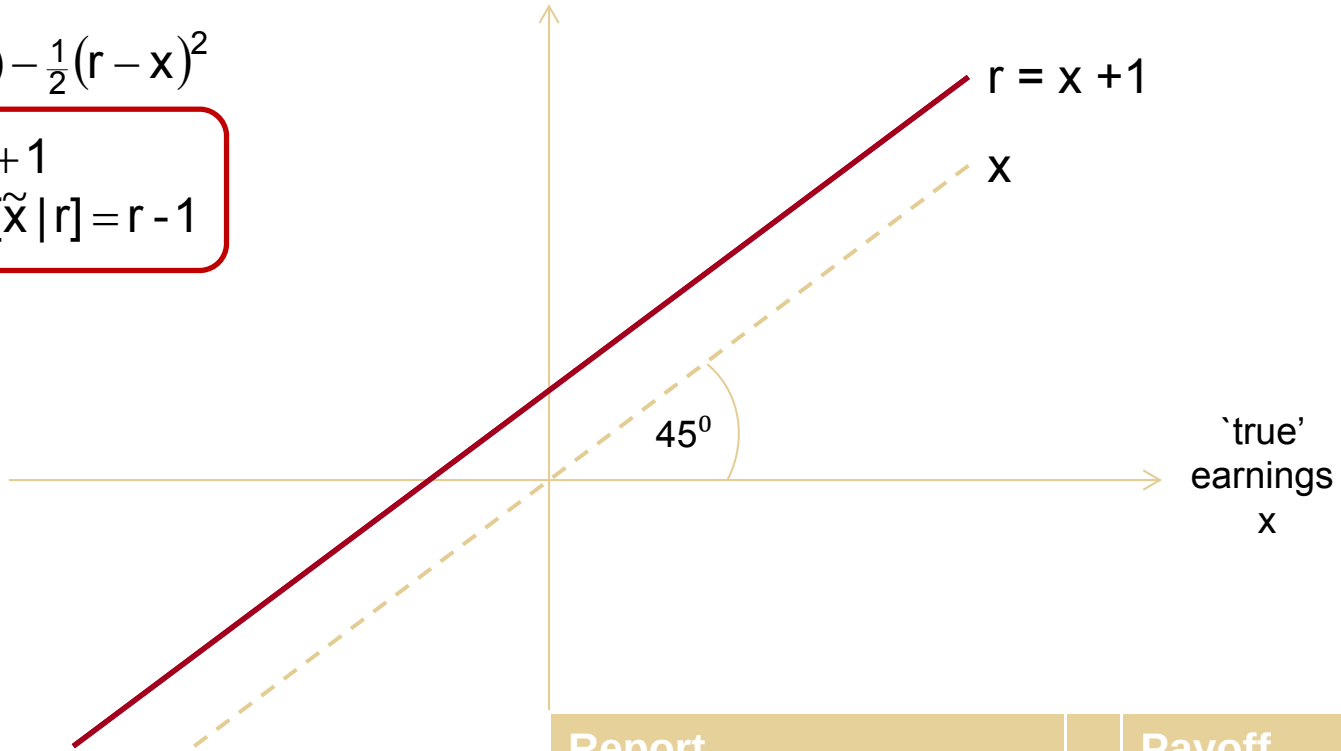

Report		Payoff
Eq. report r = x +1		x – 0.5
Truthful report r = x		x – 1
No disclosure		-∞

Voluntary Disclosure and Earnings Management

A simple model

$$\max P(r) - \tfrac{1}{2}(r - x)^2$$

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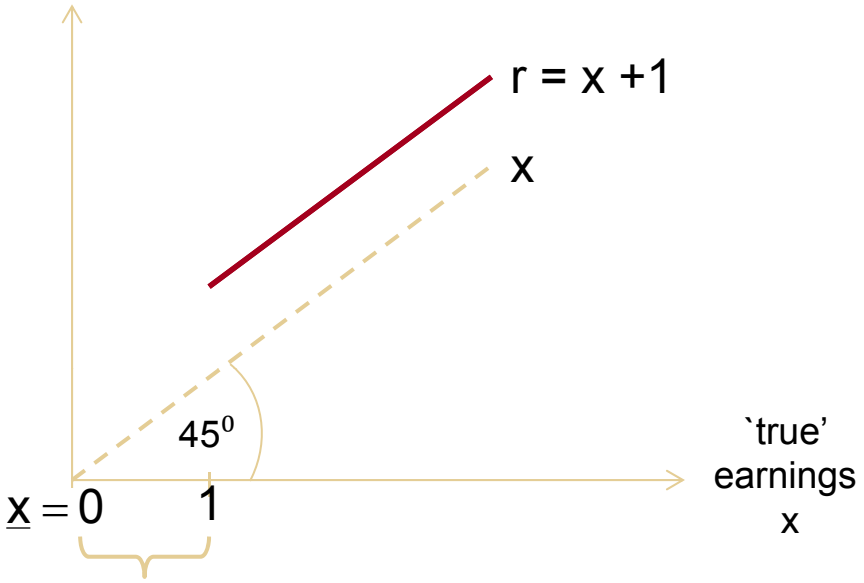


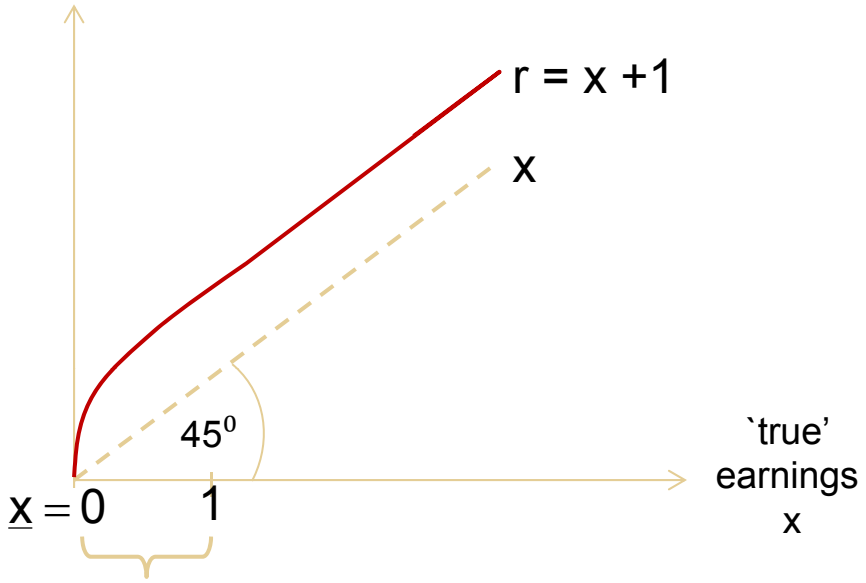
Report		Payoff
Eq. report r = x +1		x – 0.5
Truthful report r = x		x – 1
No disclosure		0.5

Voluntary Disclosure and Earnings Management

A simple model

$$\max P(r) - \tfrac{1}{2}(r-x)^2$$

$$P'(r) - (r-x) = 0$$
$$P(r(x)) = x$$



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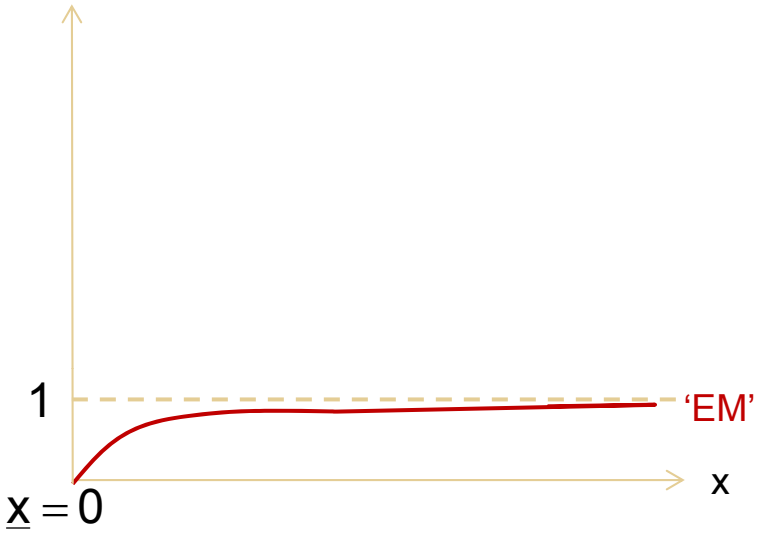
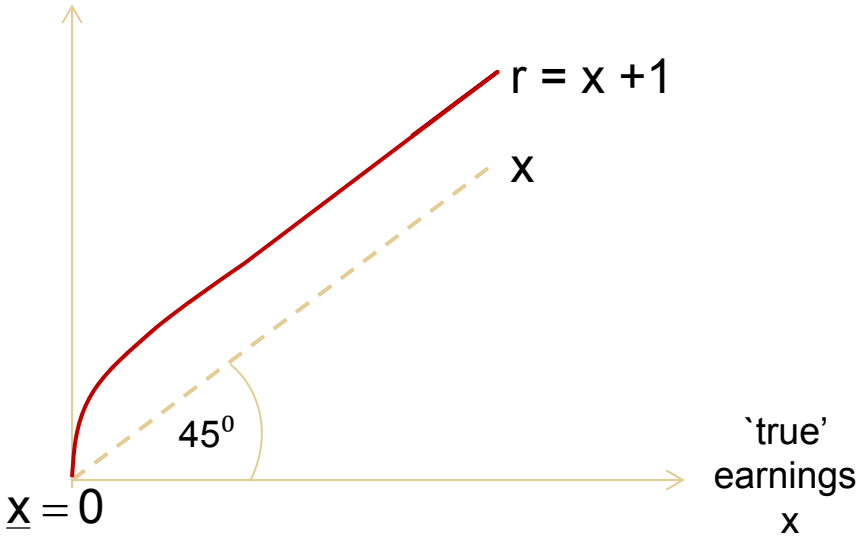
Voluntary Disclosure and Earnings Management

A simple model





Report		Payoff
Eq. report r = x +1		x – 0.5
Truthful report r = x		x – 1
No disclosure		0

Voluntary Disclosure with Earnings Management

A simple Model: Summary

- **Equilibria with**
  - Partial disclosure
  - Full disclosure

- **Disclosure is a social 'bad'**
  - Disclosure cost

- **Can there be a benefit to disclosure?**

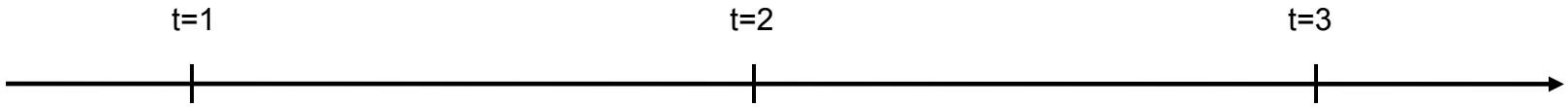
Voluntary Disclosure and Earnings Management

Modeling tools

- A simple model of earnings management (mandatory reports)
- Voluntary disclosure: the unraveling result & how to overcome it
- **Putting it together**
  - Simple model
  - Model with real effects

Investment decision

Myers and Majluf (1984)



The owner/manager
- learns the value of his firm's assets in place, x.
- has investment opportunity that requires $I of (equity) capital and generates return μ > 0

The manager decides
- whether to raise capital, number of shares α offered to investors

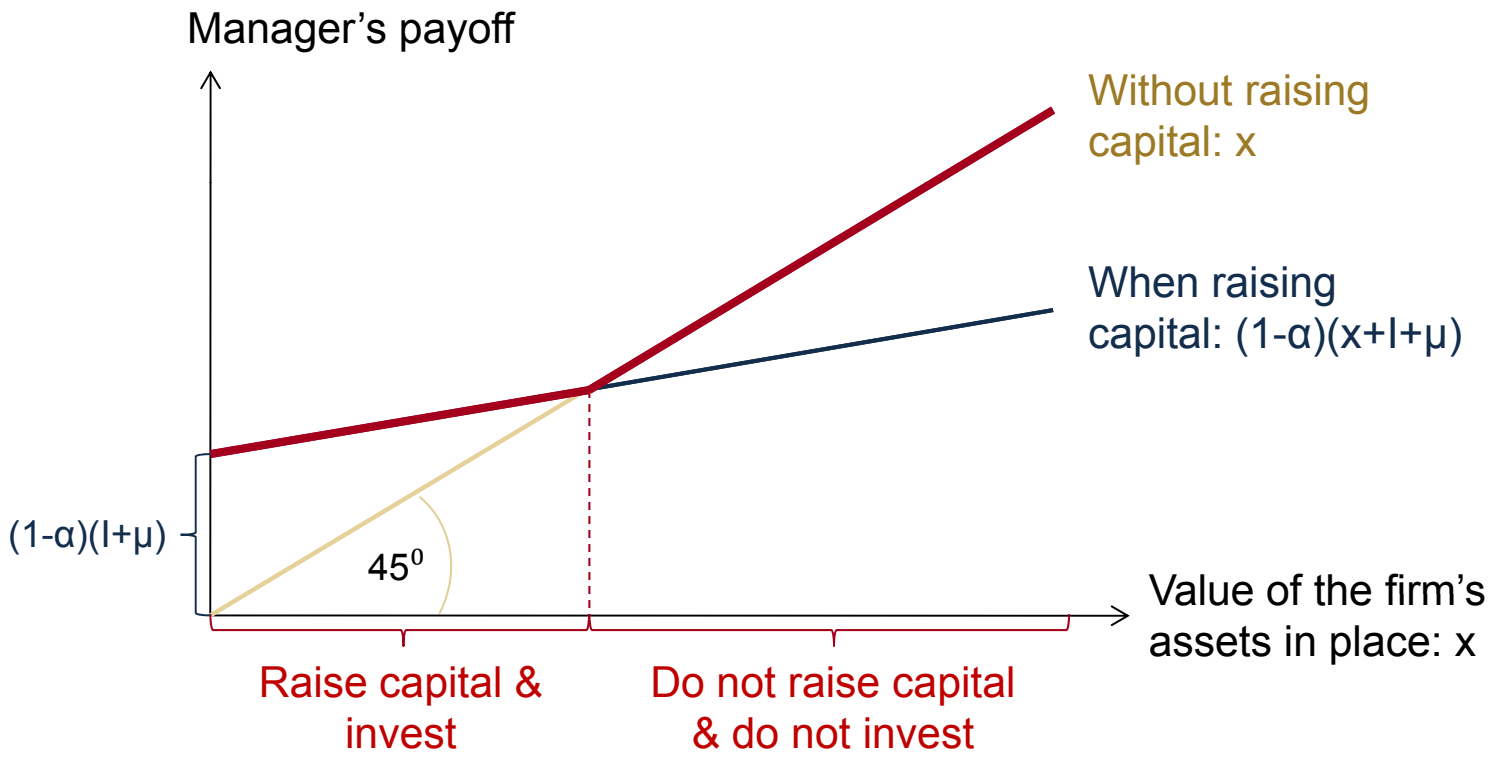
Cash flows are realized and paid out.
- Pursued new investment opportunity:
  - Investors: $\alpha(x+I+\mu)$
  - Manager: $(1-\alpha)(x+I+\mu)$
- Did not pursue new investment opp.
  - Manager: x

Investors require α shares: $I=\alpha E[\tilde{x}+I+\mu|\Omega]$

Manager prefers to invest iff: $x<(1-\alpha)(x+I+\mu)$

Investment decision

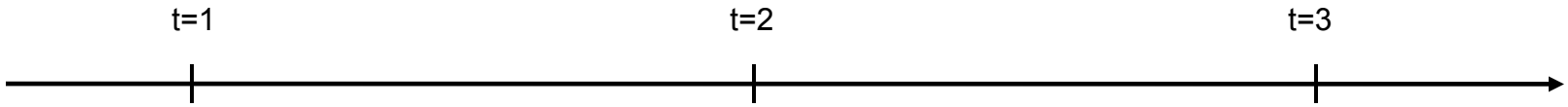
Myers and Majluf (1984)



→ Inefficient: Underinvestment

Investment decision and disclosure decision

Beyer and Guttman (2012)



The owner/manager
- learns the value of his firm's assets in place, x.
- has investment opportunity that requires $I of (equity) capital and generates return μ > 0

The manager decides
- whether to raise capital, number of shares α offered to investors
- whether to voluntarily disclose information and if so what report, r, to issue.

Cash flows are realized and paid out.
- Pursued new investment opportunity:
  - Investors: $\alpha(x+I+\mu)$
  - Manager: $(1-\alpha)(x+I+\mu)$
- Did not pursue new investment opp.
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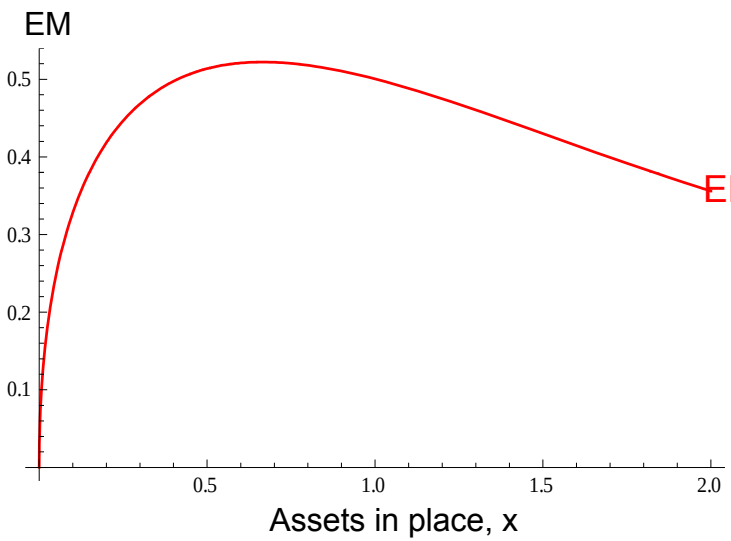
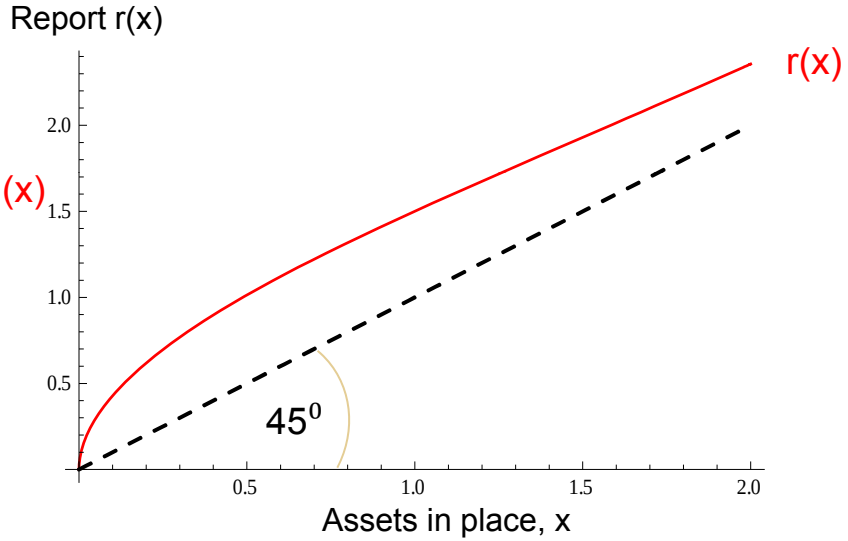
Voluntary Disclosure and Earnings Management

Model with real effects





Voluntary Disclosure and Earnings Management

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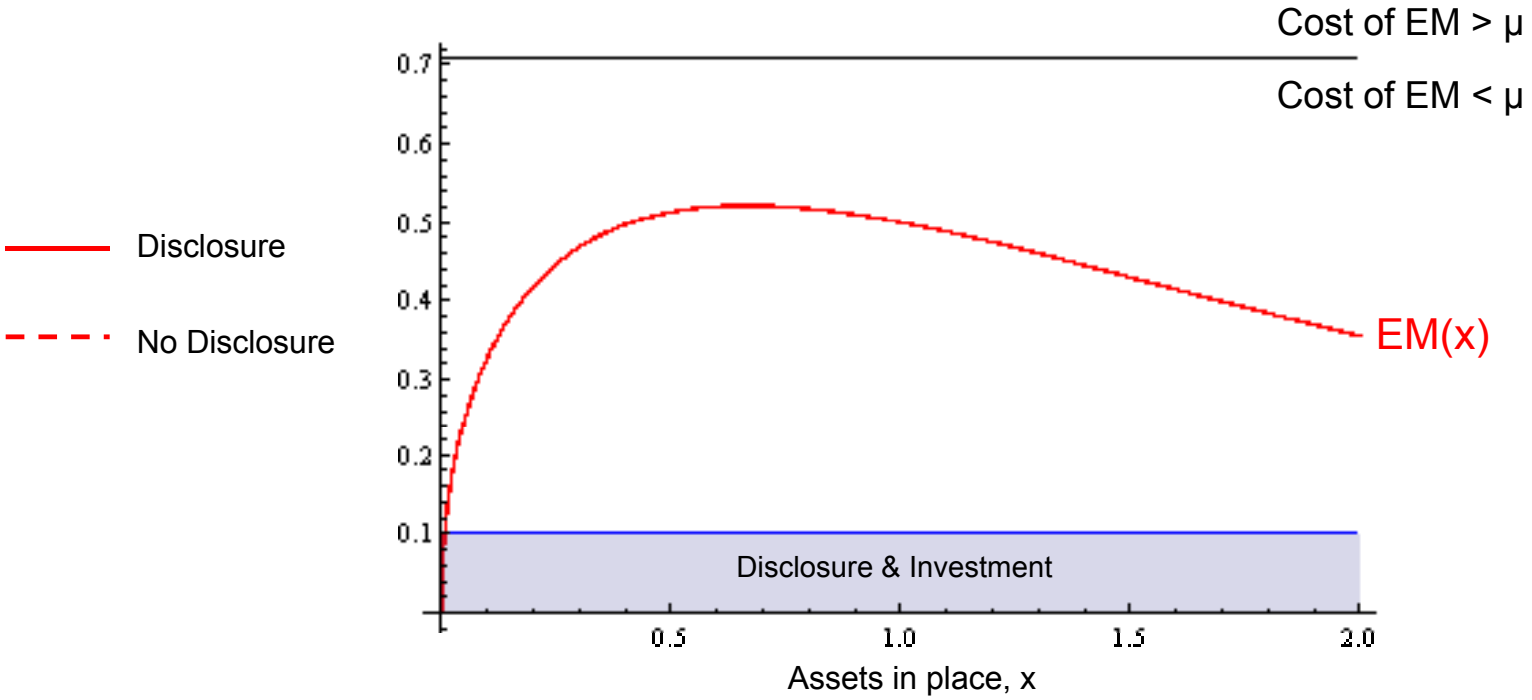

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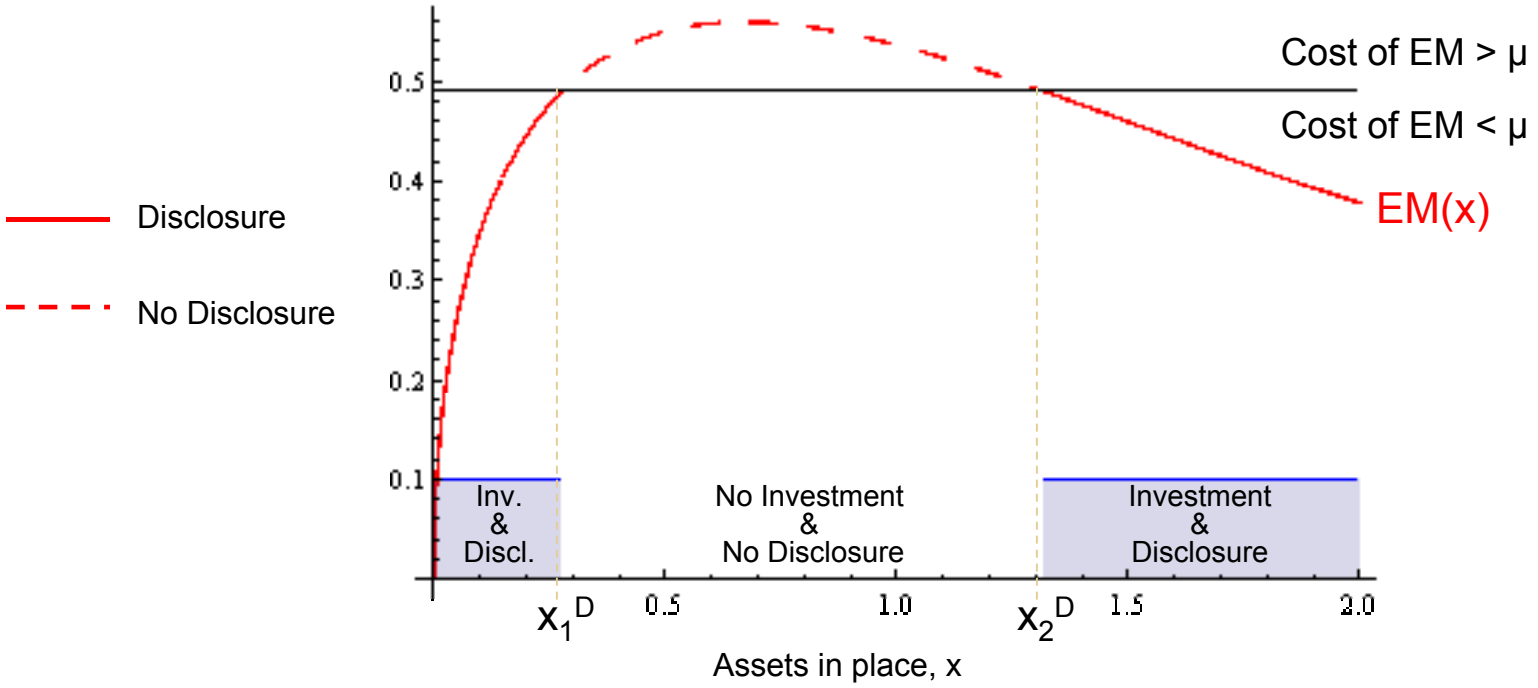

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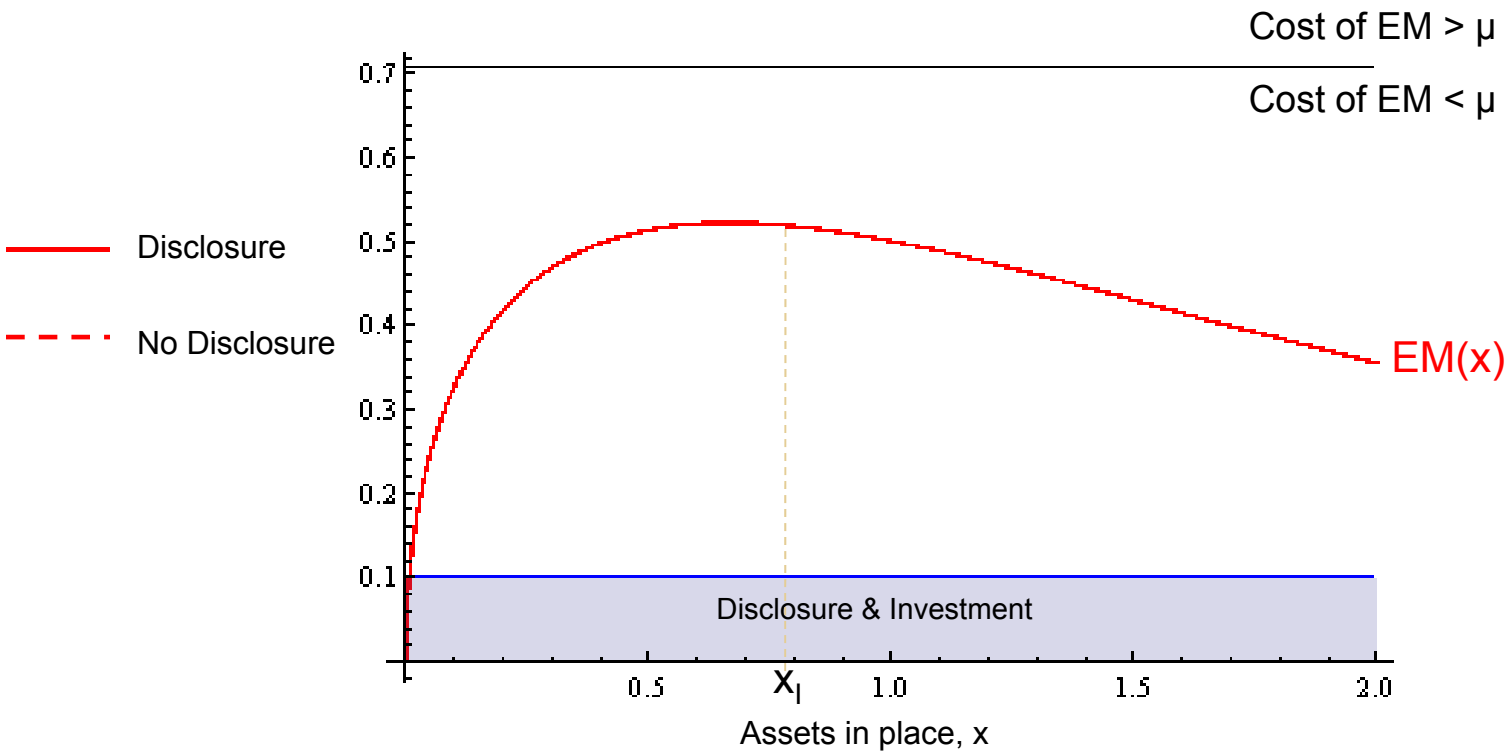

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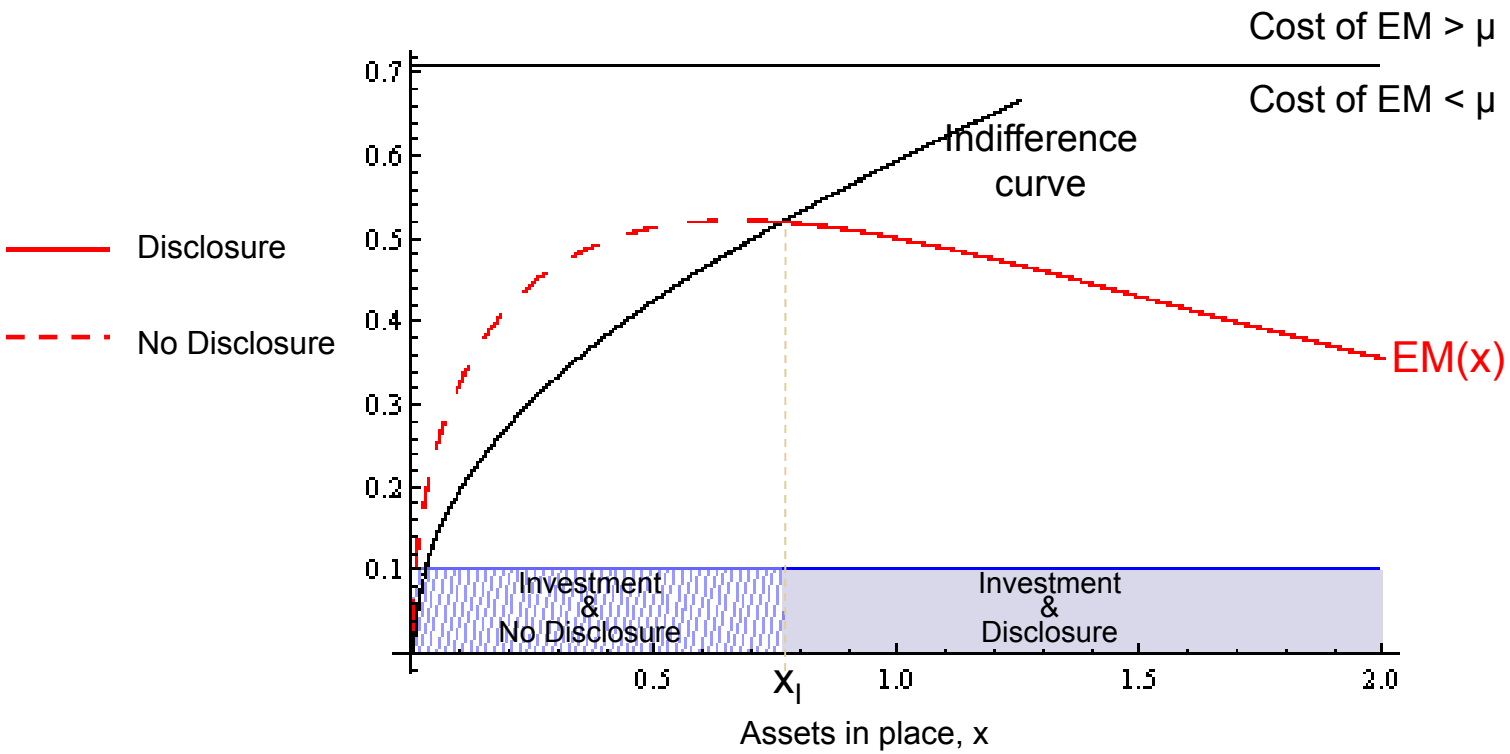

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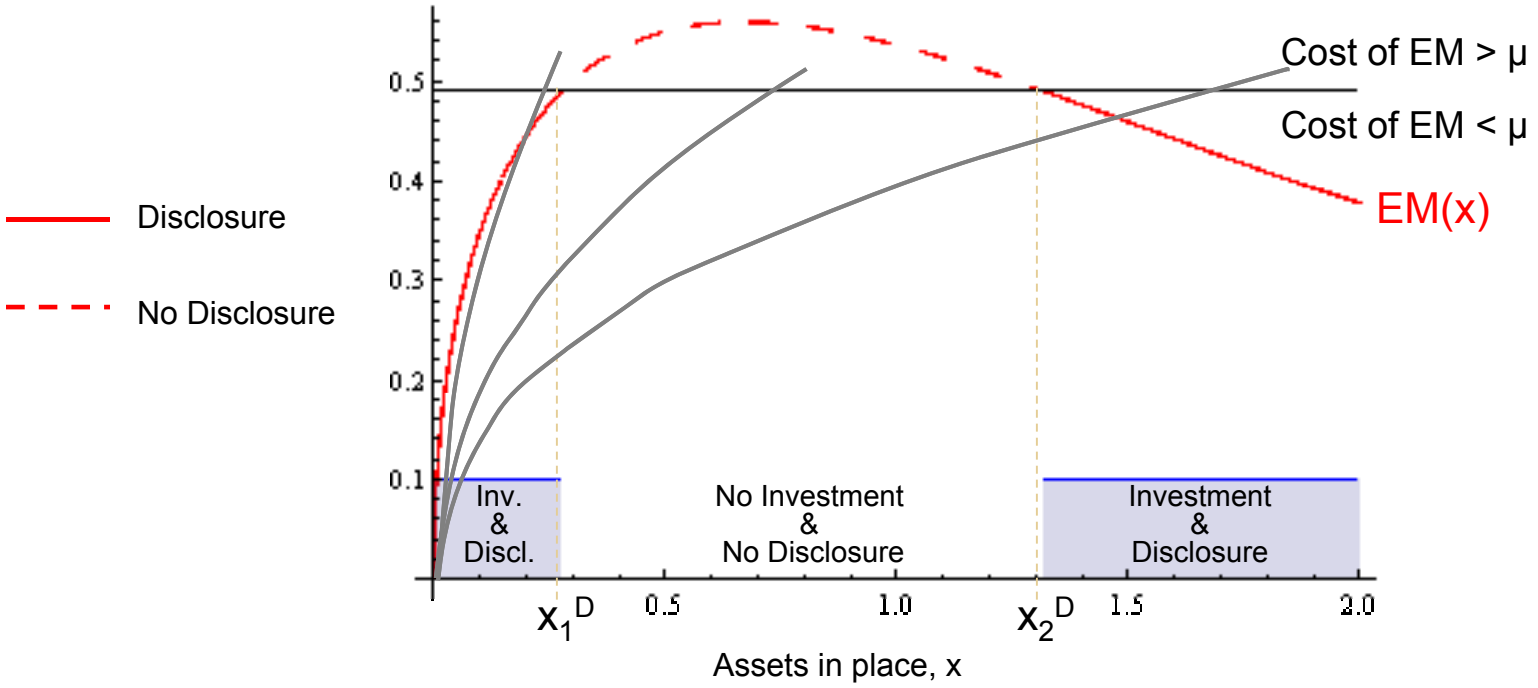

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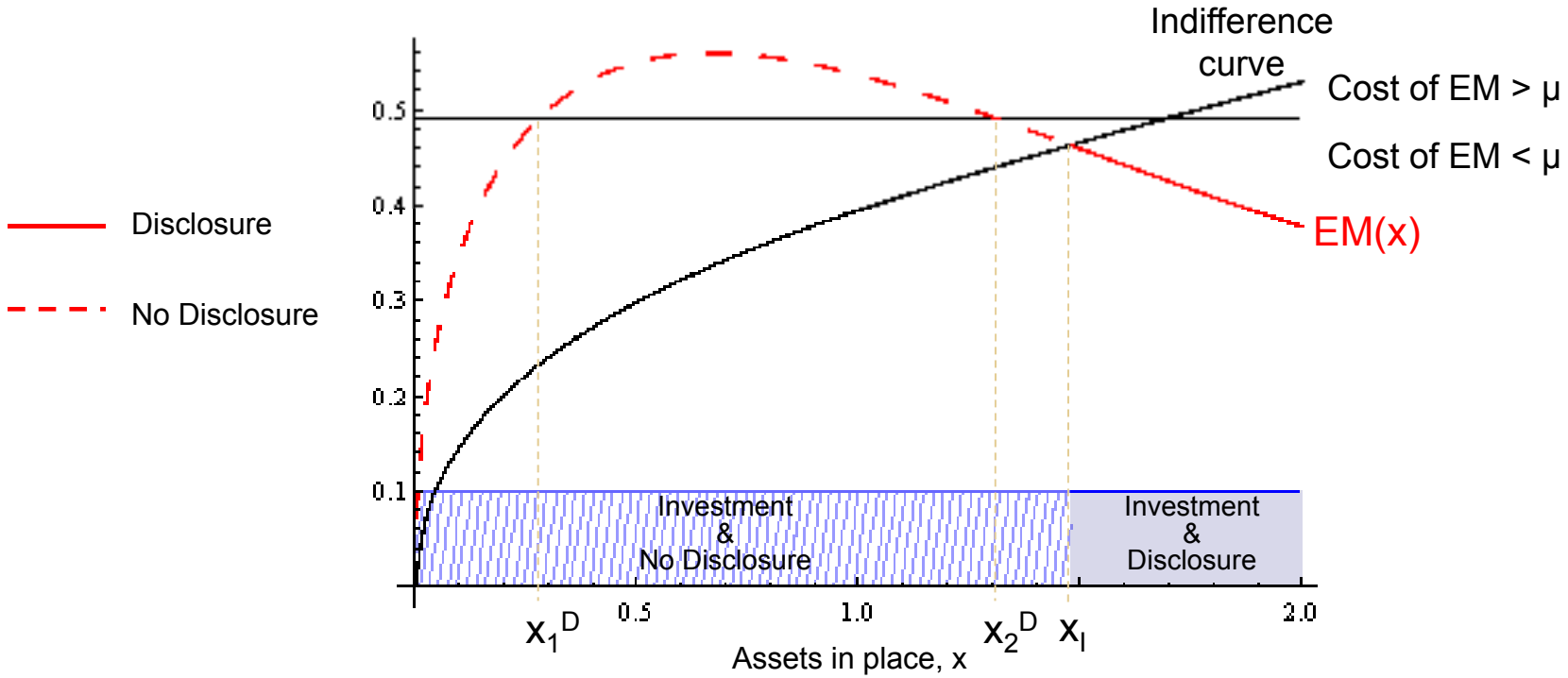

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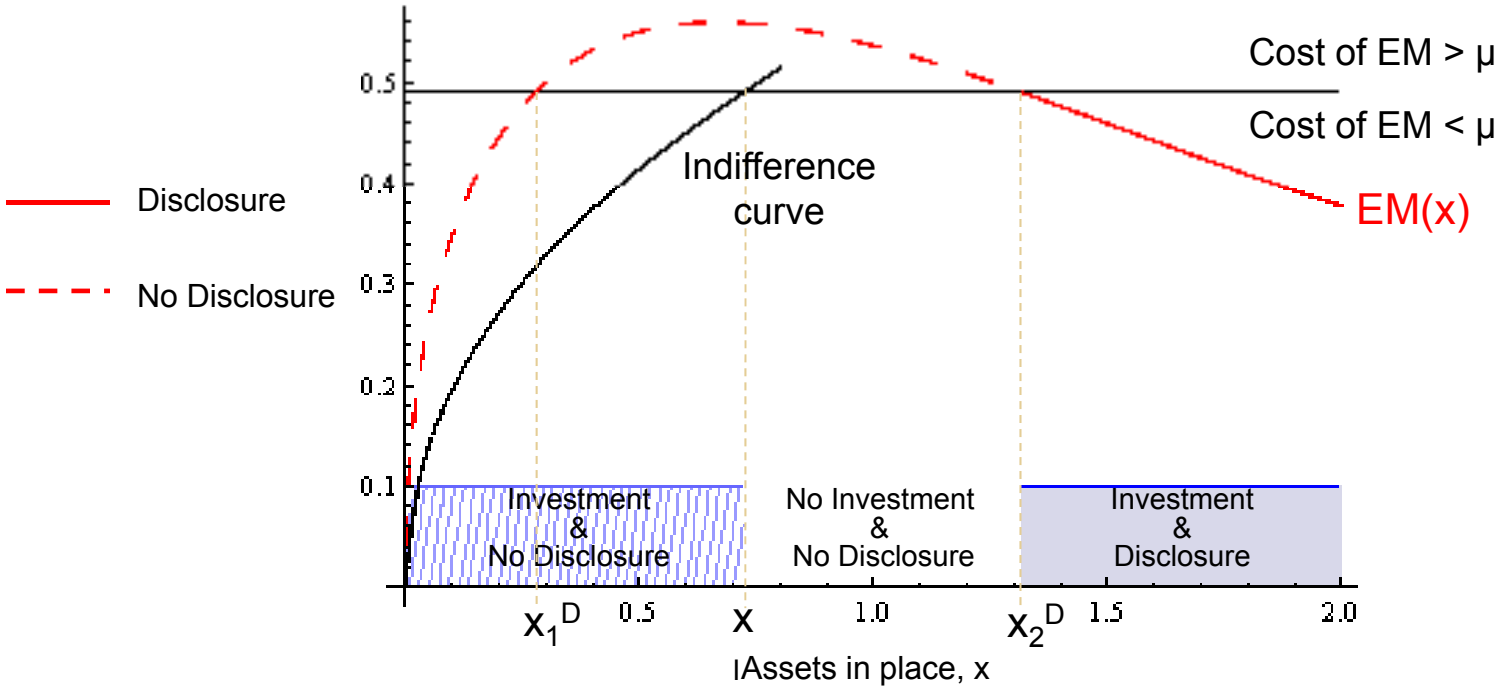

Voluntary Disclosure and Earnings Management

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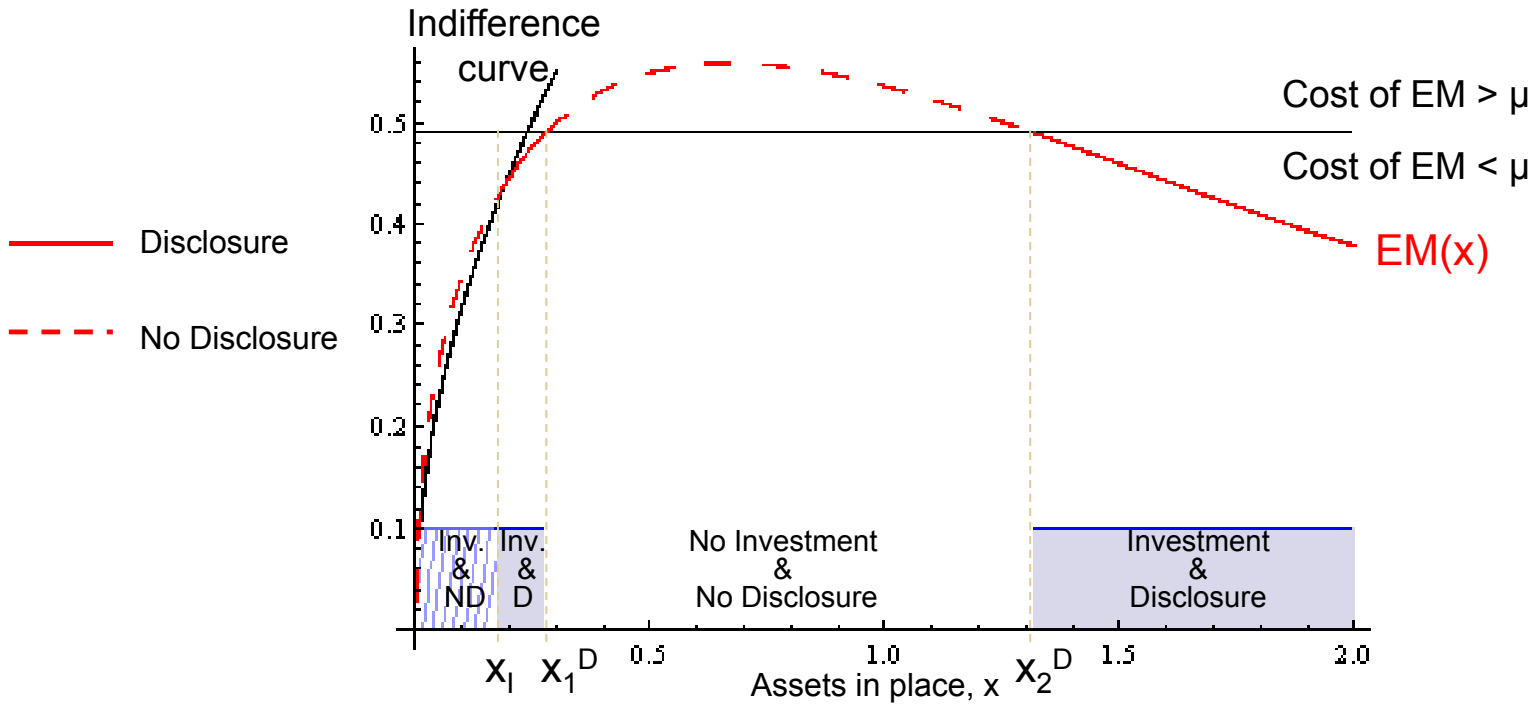

Voluntary Disclosure and Earnings Management

Model with real effects

- **Interdependence of**
  - Decision whether to disclose and earnings management
  - Disclosure decision and investment decision

- **Equilibrium is more complex than threshold strategy**
  - Disclosure decision
  - Investment decision

Future Research
Some themes

- **Earnings**
  - Accounting standards

- **Earnings management**
  - Manipulation vs. Information

- **Voluntary disclosure**
  - Reputation

- **Interdependencies: disclosure and…**
  - …investing, financing