

Talk or Walk the Talk? The Real Impact of ESG Investing

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Abstract

Motivation

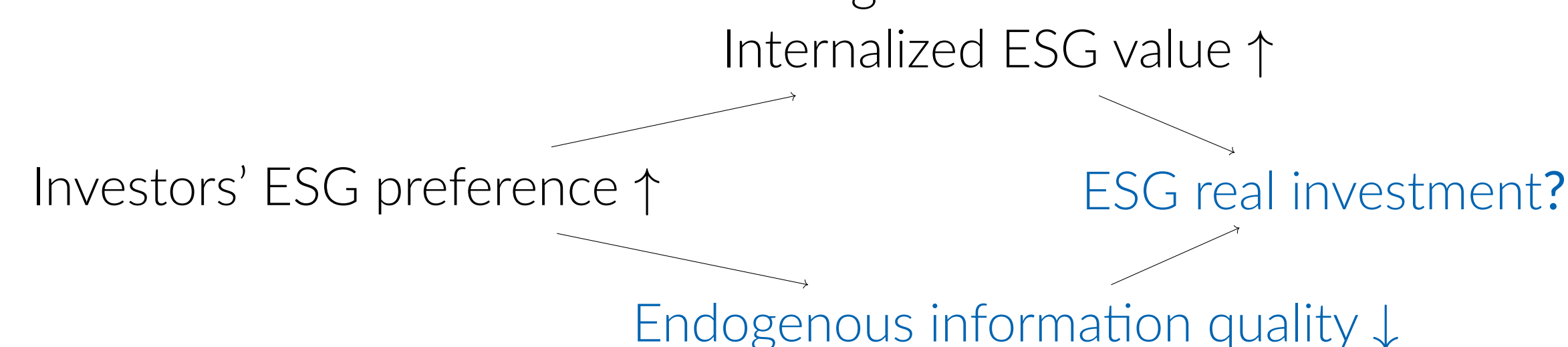
- The environmental, social, and governance (ESG) investing has expanded dramatically over the last two decades
- Incentivizing ESG activities is the distinctive goal of ESG investing
- Greenwashing becomes prevalent with the growth of ESG investing

Research Questions

- When investors care more about ESG, do firms engage in more **REAL ESG activities**, or just do more **Greenwashing**?

Main Message

- Paradox of ESG incentivization through financial markets



- When firms can easily manipulate ESG disclosures, stronger investor ESG preference can **decrease** ESG real investment

Model Setup

Timeline:



- The firm gets either a green or brown investment opportunity ($\theta \in \{G, B\}$) and decides whether to take it ($I \in \{0, 1\}$)
- w.p. π : green project with ESG value $v_e(\theta, I) = e_G > 0$
- w.p. $1 - \pi$: brown project with ESG value $v_e(\theta, I) = e_B < 0$
- The NPV of the investment is $v(\theta, I) = -k_\theta v_e(\theta, I)$.
- Each firm with a new project discloses a message m about its ESG value:
 - truthfully report
 - misreport with a cost $C(v_e, m)$
- ESG investors trade the stock of the firm at the price p_e

Equilibrium

Trading Stage

- Competitive Pricing $p_e = \beta \mathbb{E}[v_e | m]$

Disclosure Stage

- The likelihood of greenwashing (share of greenwashing firms) q is increasing in the intensity of ESG preference β

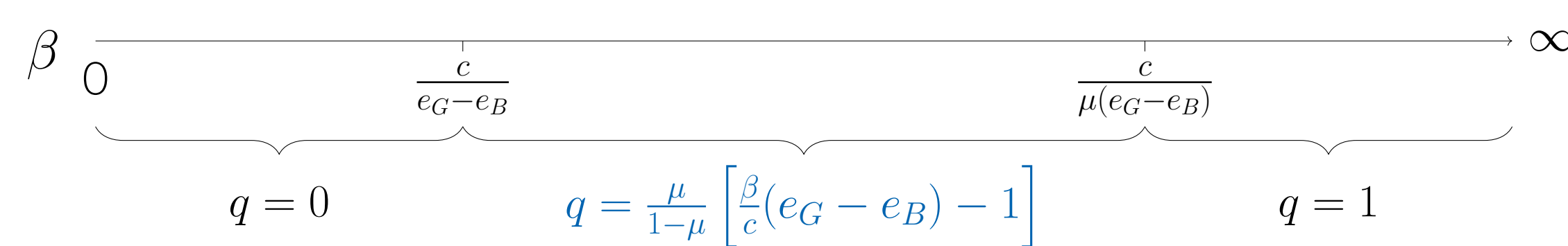


Figure 1. Equilibrium at Disclosure Stage

Real Investment Stage

- The firm manager makes green investments if:

$$\underbrace{\hat{U}_2(v_e^* = e_G) = \beta \mathbb{E}[v_e | m = e_G]}_{\text{market compensation to green investment}} \geq \underbrace{-v(G, 1) = k_G e_G}_{\text{NPV } \downarrow \text{ due to green investment}}$$

Main Results

Proposition 1 The intervals of β in which green investment is made depend on the information manipulation cost c :

- Weak Information Discipline:**
If $c \leq k_G(e_G - e_B)$, the green investment is never made
- Intermediate Information Discipline:**
If $c \in (k_G(e_G - e_B), k_G e_G - k_B e_B)$, the green investment is made if $\beta \in [k_G, \frac{k_G e_G - c}{e_B}]$
- Strong Information Discipline:**
If $c \geq k_G e_G - k_B e_B$, the green investment is made if $\beta \geq k_G$

Graphical Illustration of Main Results

Decompose the effect of ESG preference β on market compensation:

$$\begin{aligned} \frac{\partial \hat{U}_2(e_G)}{\partial \beta} &= \frac{\partial \{\beta \mathbb{E}[v_e | m = e_G]\}}{\partial \beta} \\ &= \underbrace{[\alpha e_G + (1 - \alpha) e_B]}_{> 0: \text{ internalized ESG value } \uparrow} + \underbrace{\beta(e_G - e_B) \frac{\partial \alpha}{\partial \beta}}_{< 0: \text{ greenwashing firms } \uparrow} \end{aligned}$$

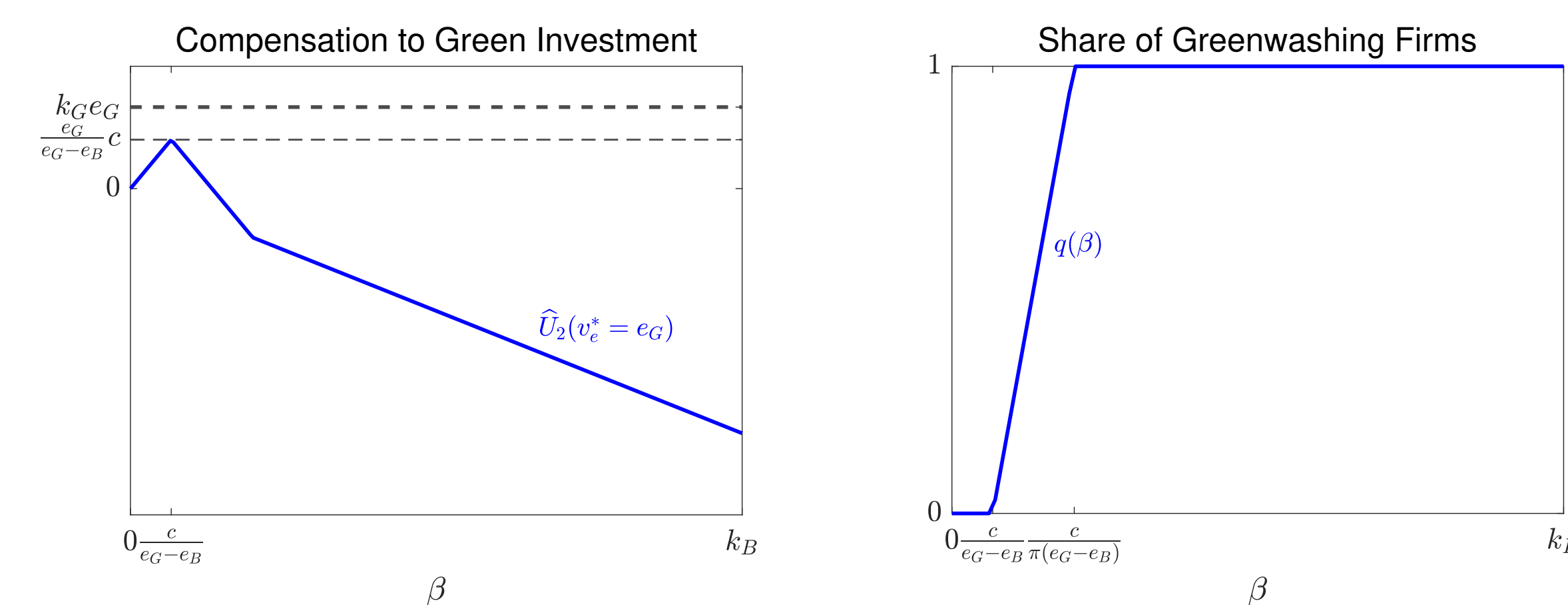


Figure 2. Green Investment When $c \leq k_G(e_G - e_B)$

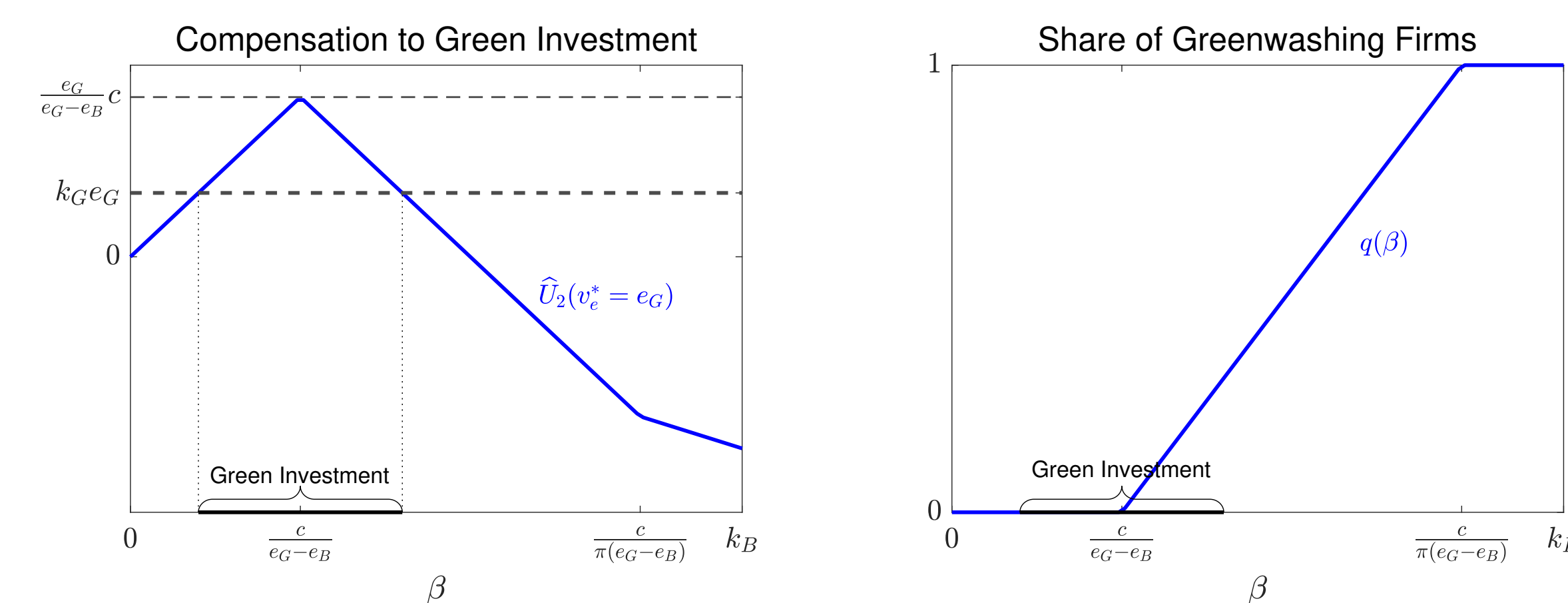


Figure 3. Green Investment When $c \in (k_G(e_G - e_B), k_G e_G - k_B e_B)$

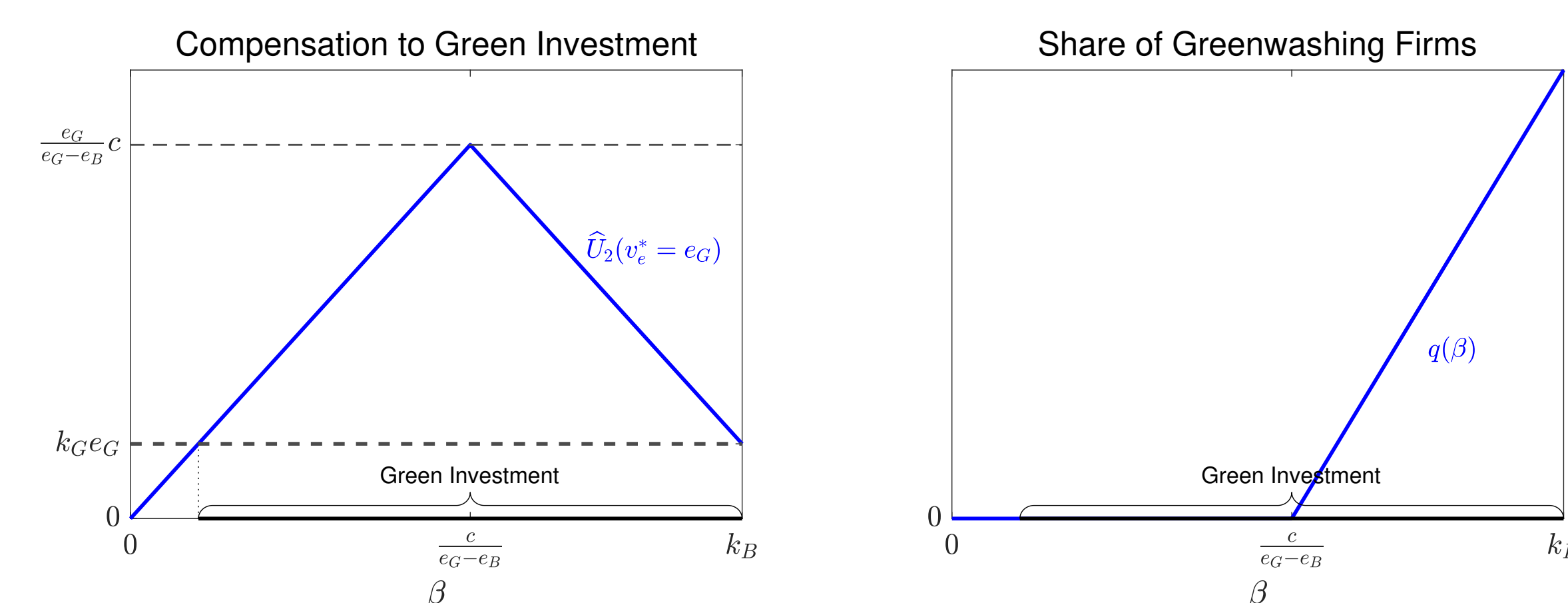


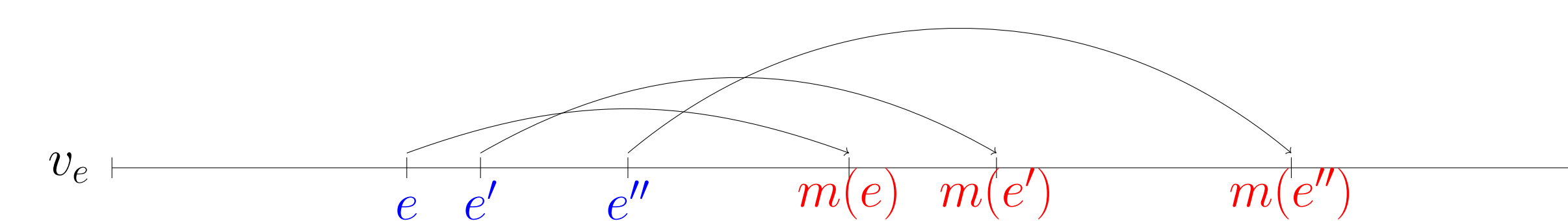
Figure 4. Green Investment When $c \geq k_G e_G - k_B e_B$

ESG Measurements and "Information Loss"

- A generalized model with continuous type space
 - The ESG fundamental $v_e \in V_e = \mathbb{R}$, and $v_e \sim G(\cdot)$
 - The message space is $M = V_e$
- A **measurement of the ESG fundamental** is defined as a partition \mathbf{Q} of the space $M = V_e = \mathbb{R}$, represented by a collection of intervals $\{Q\}_{i=1}^n = \{[e_{i-1}, e_i]\}_{i=1}^n$, where $-\infty = e_0 < e_1 < \dots < e_n = \infty$.
- For a firm with ESG value $v_e \in Q_i$ and reported message $m \in Q_j$, the cost of ESG reporting $C(v_e, m)$ is defined as

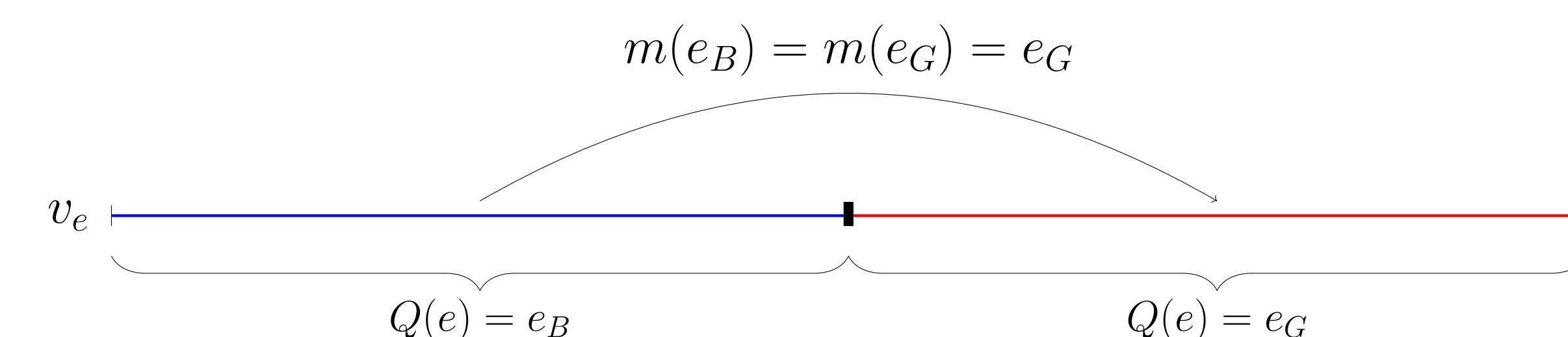
$$C(v_e, m) = \begin{cases} 0 & \text{if } i = j \\ \frac{1}{2}c \left[\frac{e_{i-1} + e_i}{2} - \frac{e_{j-1} + e_j}{2} \right]^2 & \text{if } i \neq j \end{cases}$$

Case I: Fine Measurement



- No "information loss": full separation even when ESG preference β is large \rightarrow more misreporting does not distort real investment

Case II: Coarse Measurement



- "Information loss" increases with ESG preference β : pooling region increases with $\beta \rightarrow$ more misreporting distorts real investment

Extensions and Policy Implications

- Application to other contexts: e.g., ESG fund management, Green bond issuance, "Impact" venture capital, etc.
- Market discipline has limited power in addressing different ESG issues, depending on whether the disclosures could be easily manipulated.
 - We live in a world of rapidly-growing ESG investing + limited ESG information discipline!
- Measurements and weights used in ESG ratings should consider not only the importance of ESG fundamentals but also the vulnerability to manipulation.
- CEO compensation should be tied to more reliable ESG performance measurements
- Greenwashing institutional investors can exacerbate corporate greenwashing and reduce ESG real activities