Discussion of

"The Liquidity Coverage Ratio and Monetary Policy Implementation" by Morten Bech and Todd Keister

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Introduction

- Review the main mechanism
- Review the interesting results
- Comments

Main Ingredients

$$\Delta\ ;\ \Delta_T\ ;\ \varepsilon$$

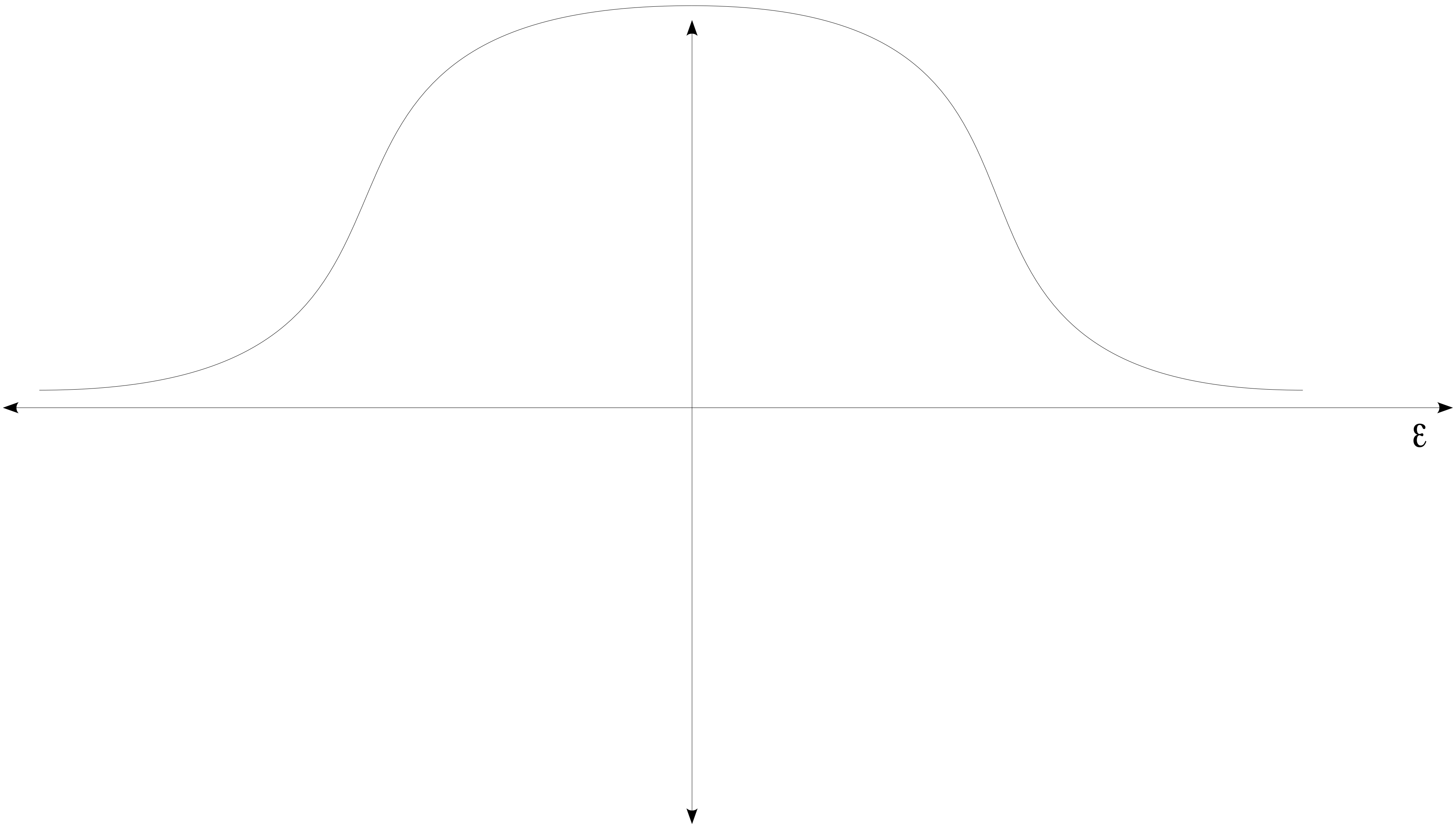
$$\textit{Reserve requirement}: \quad X = R - K + \Delta + \Delta_T - \varepsilon$$

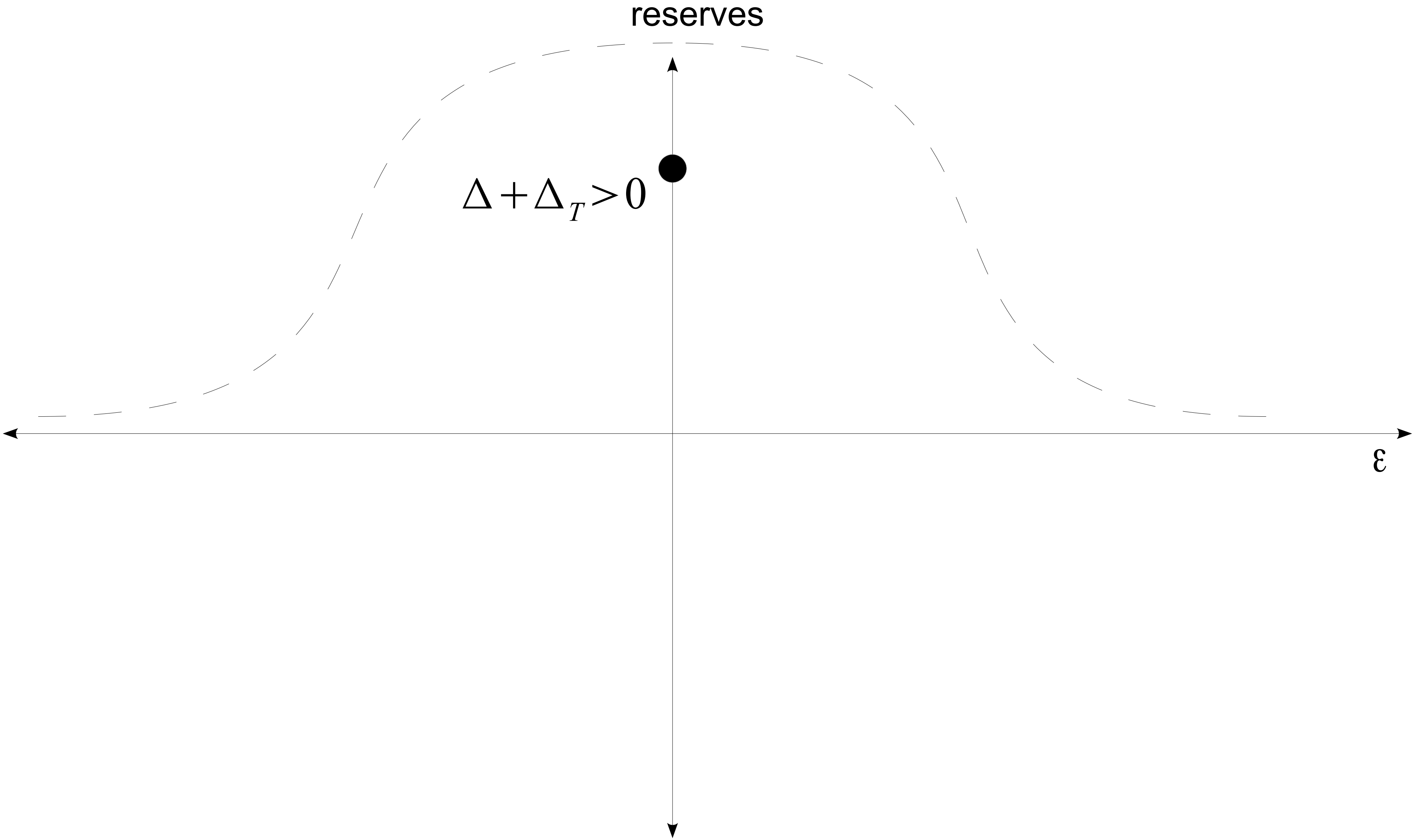
$$\textit{Liquidity coverage ratio}: \quad X = \frac{R - C}{\left(1 - \theta_X\right)} + \frac{\Delta_T}{\left(1 - \theta_X\right)} - \frac{\left(1 - \theta_D\right)}{\left(1 - \theta_X\right)}\varepsilon$$

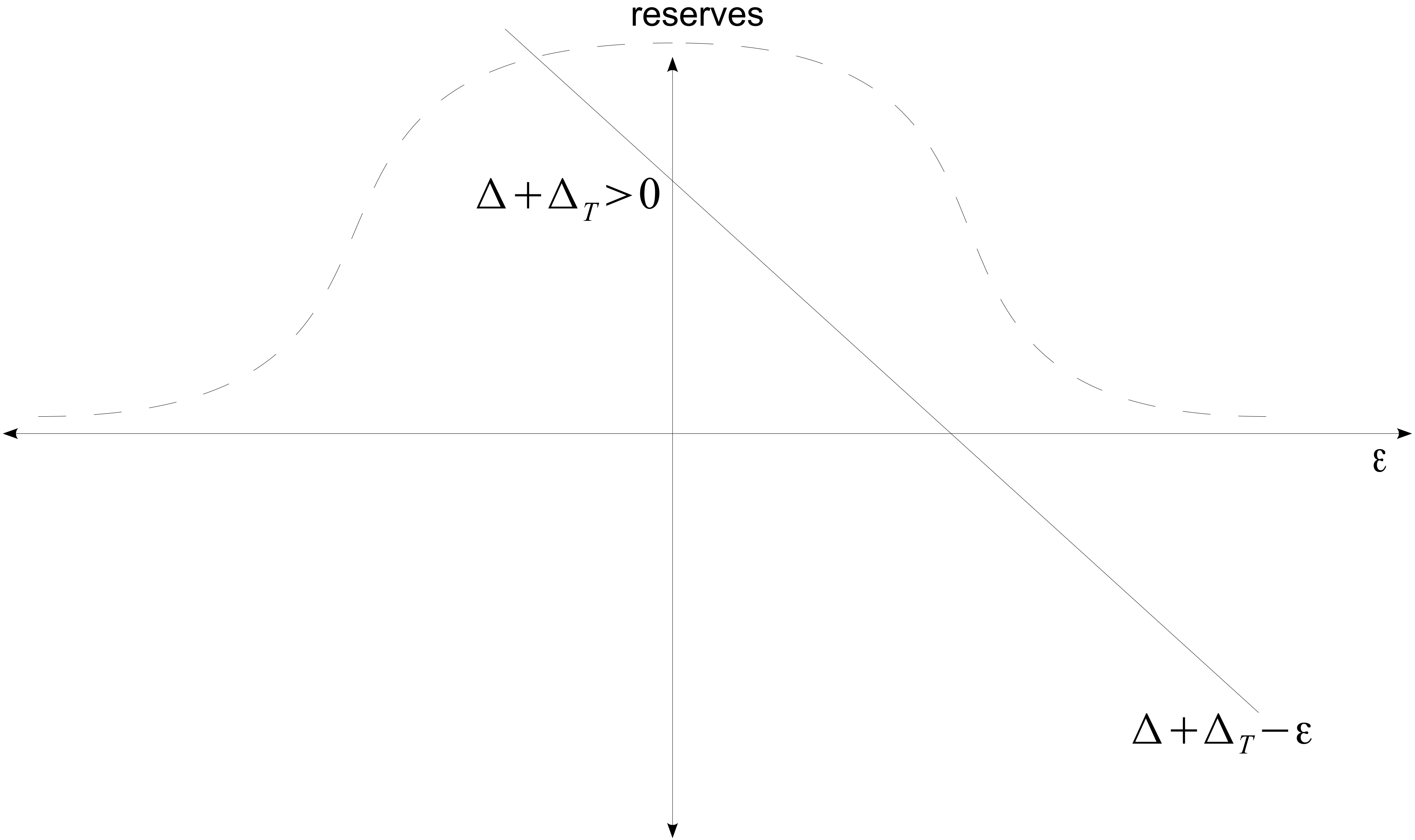
$$\textit{Set}: R = C = K$$

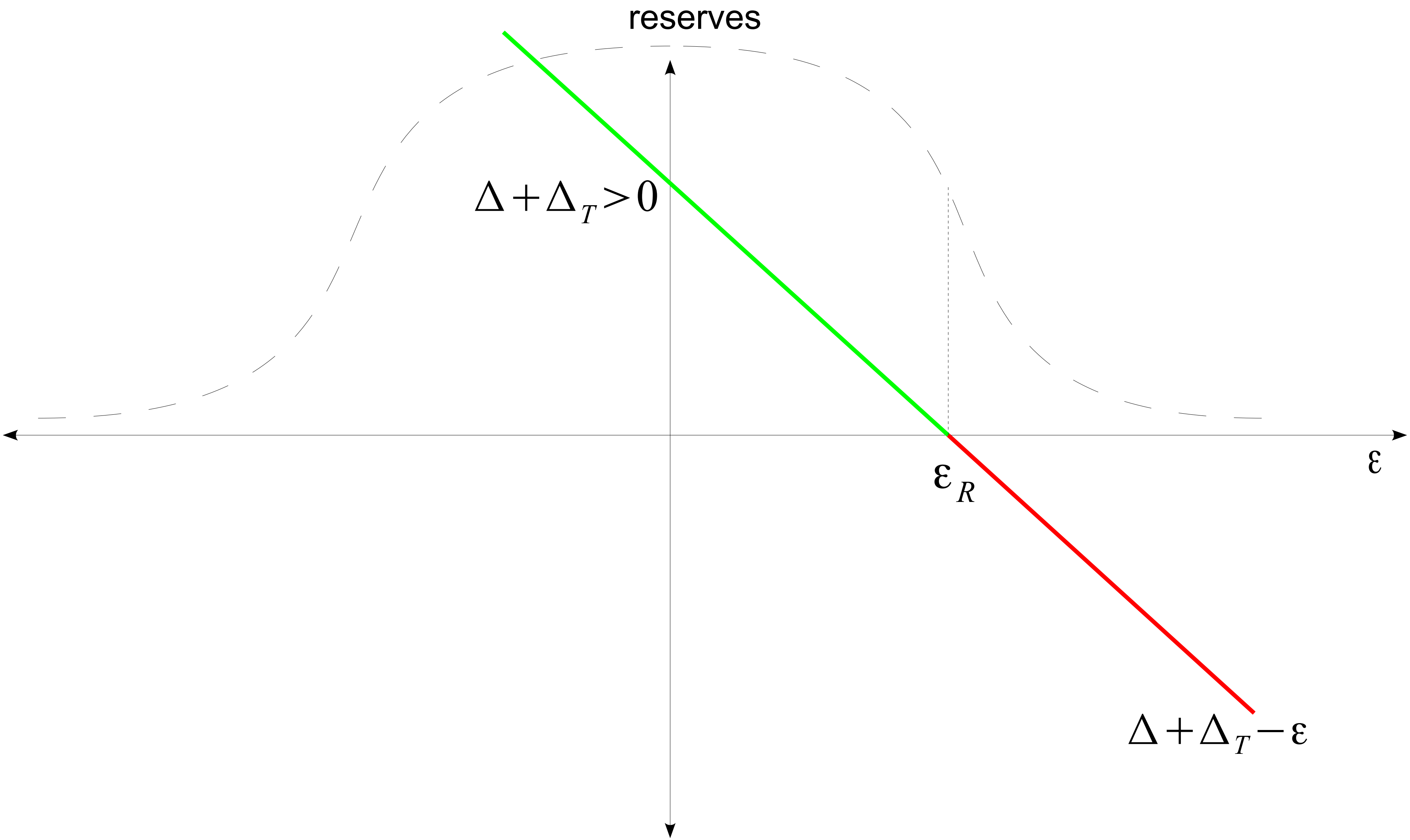
The Poole Model

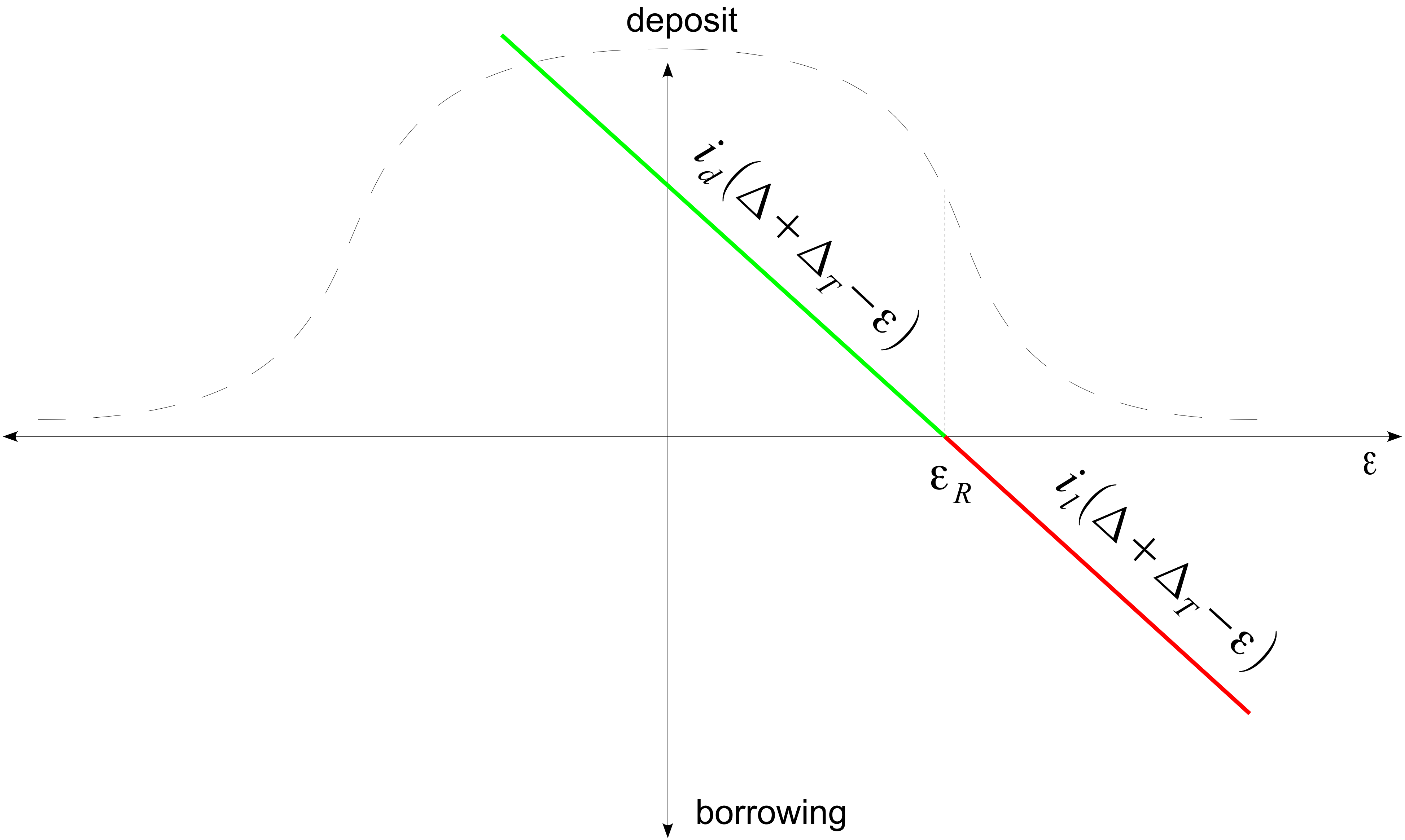
- Reserve requirement


ε

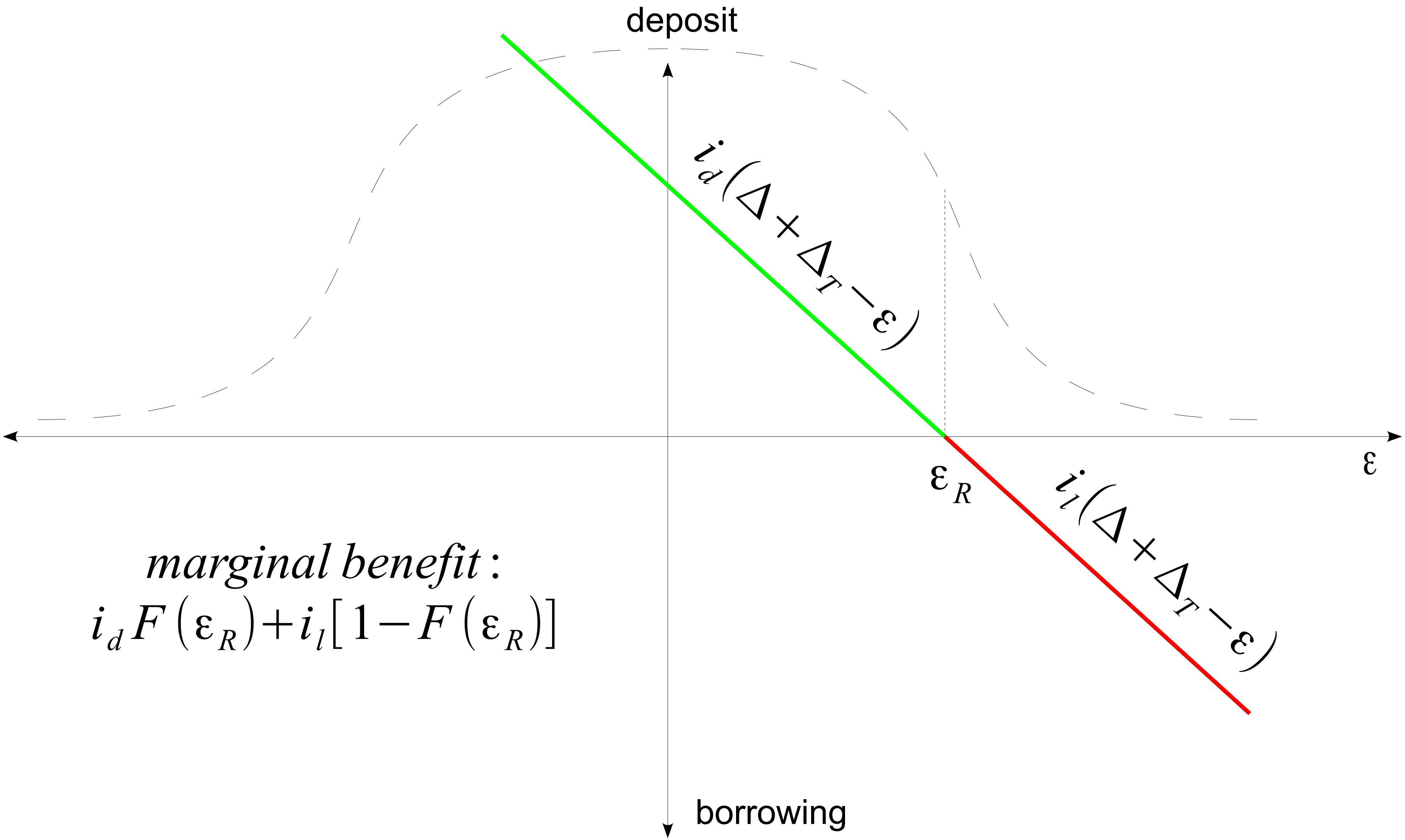

reserves
$\Delta + \Delta_T > 0$
ε

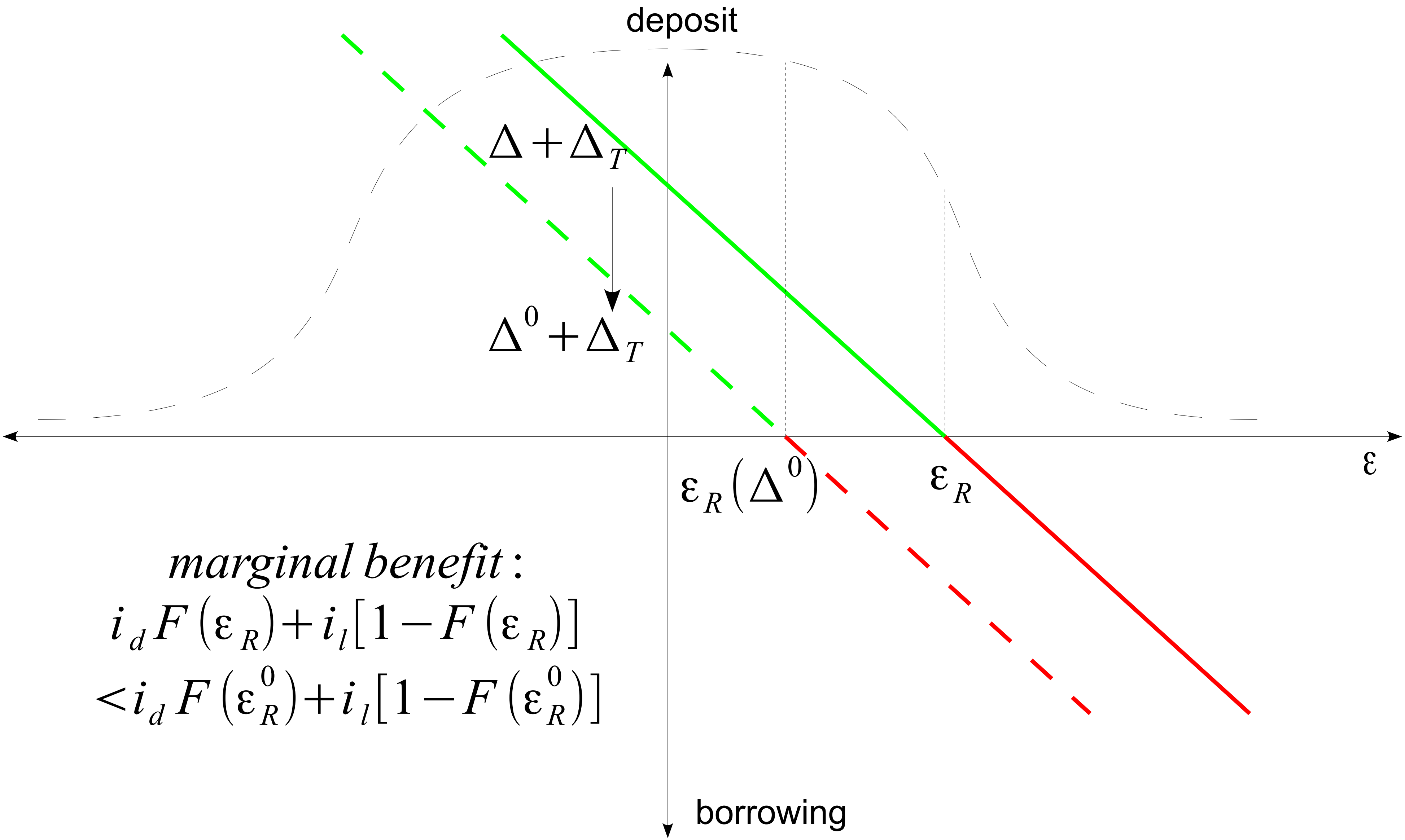

reserves
$\Delta + \Delta_T > 0$
ε
$\Delta + \Delta_T - \varepsilon$

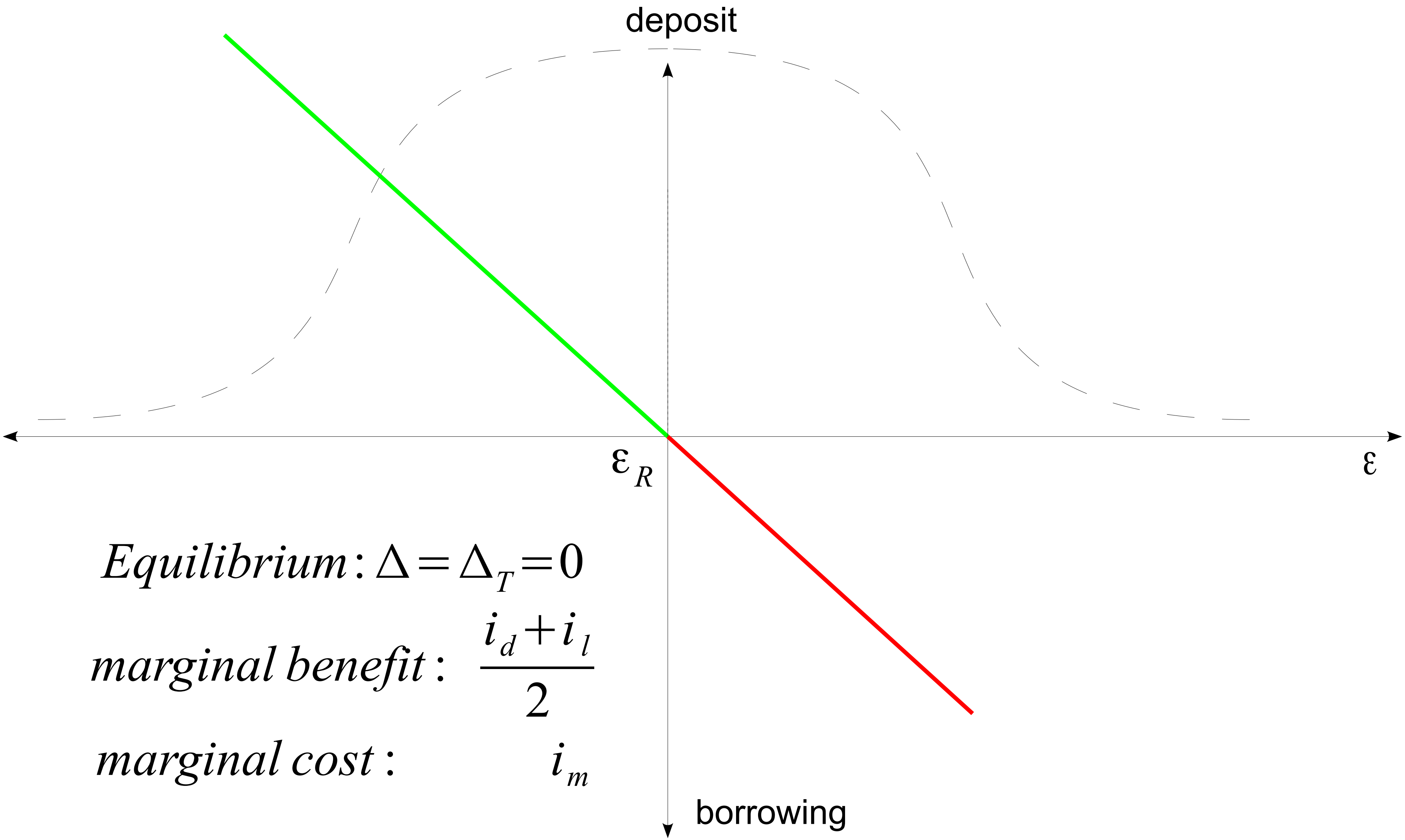

reserves
$\Delta + \Delta_T > 0$
ε
ε_R
$\Delta + \Delta_T - \varepsilon$



deposit
$i_d(\Delta + \Delta_T - \varepsilon)$
ε
ε_R
$i_l(\Delta + \Delta_T - \varepsilon)$
borrowing


deposit
borrowing
ε
ε_R
$i_d(\Delta+\Delta_T-\varepsilon)$
$i_l(\Delta+\Delta_T-\varepsilon)$
marginal benefit :
$i_d F(\varepsilon_R)+i_l[1-F(\varepsilon_R)]$

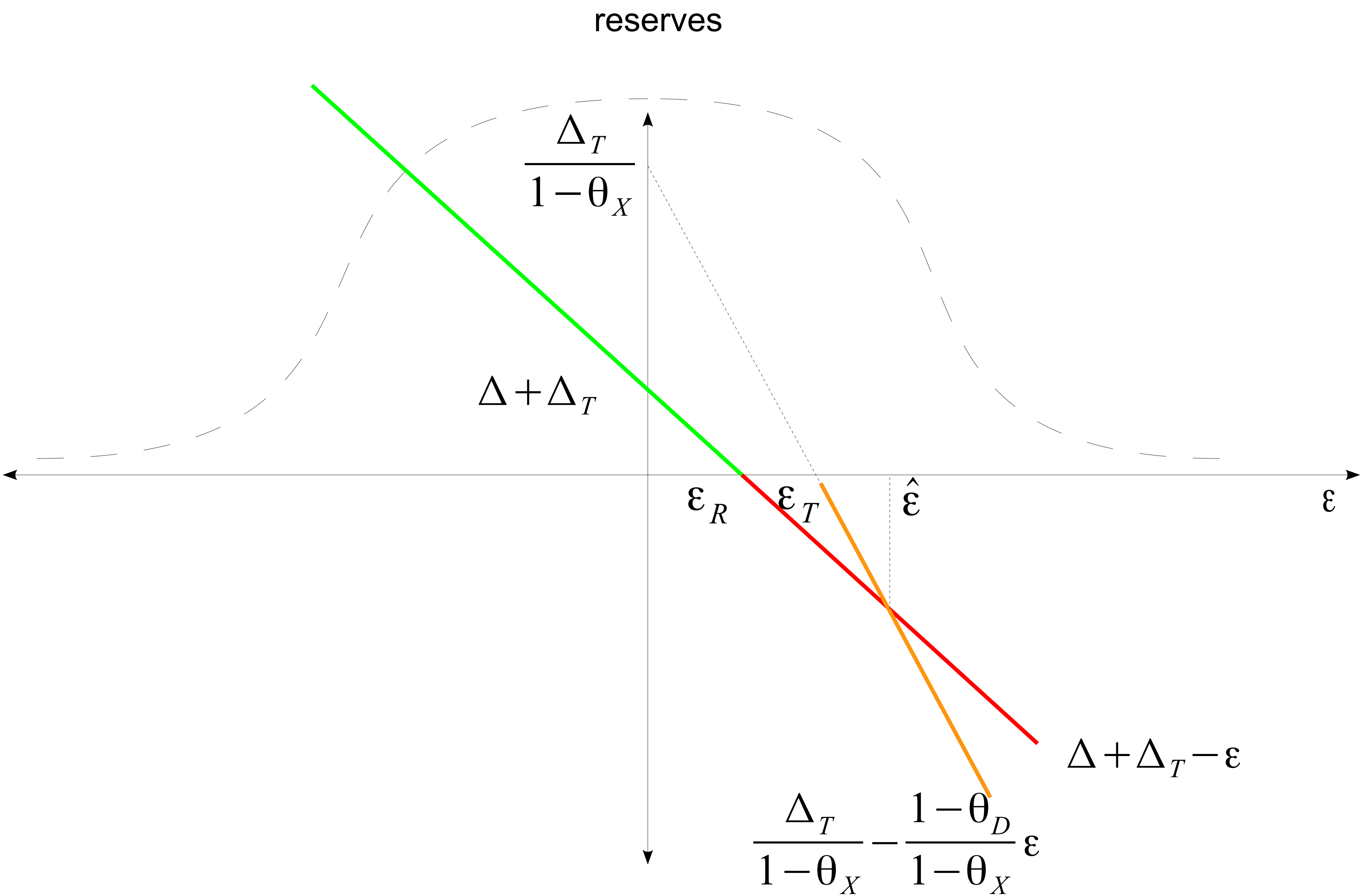

deposit
$\Delta + \Delta_T$
$\Delta^0 + \Delta_T$
$\varepsilon_R\left(\Delta^0\right)$
ε_R
ε
marginal benefit :
$i_d F(\varepsilon_R) + i_l[1 - F(\varepsilon_R)]$
$< i_d F(\varepsilon_R^0) + i_l[1 - F(\varepsilon_R^0)]$
borrowing

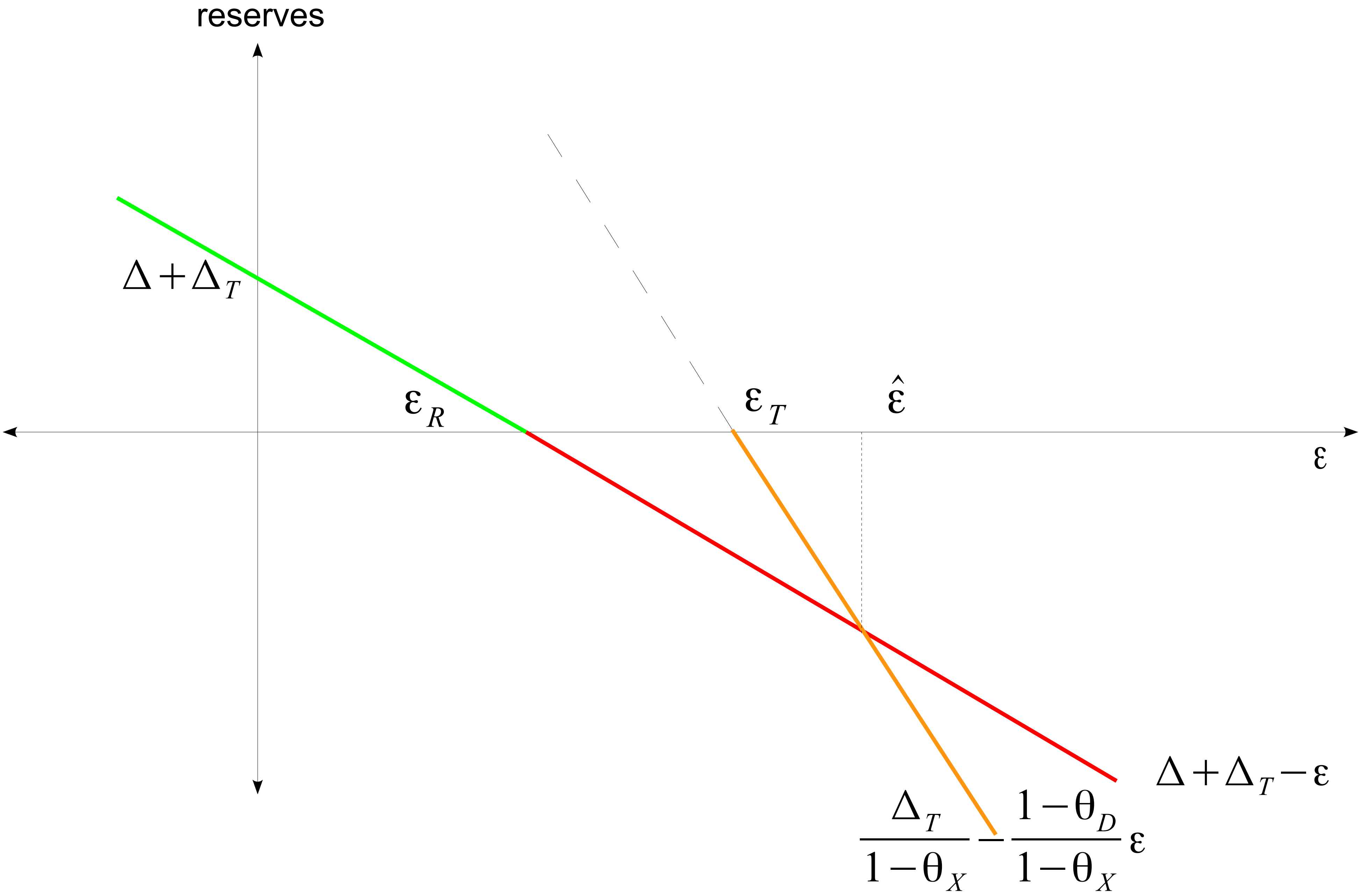

deposit
ε_R
ε
$Equilibrium: \Delta = \Delta_T = 0$
$marginal\ benefit: \quad \frac{i_d + i_l}{2}$
$marginal\ cost: \quad i_m$
borrowing

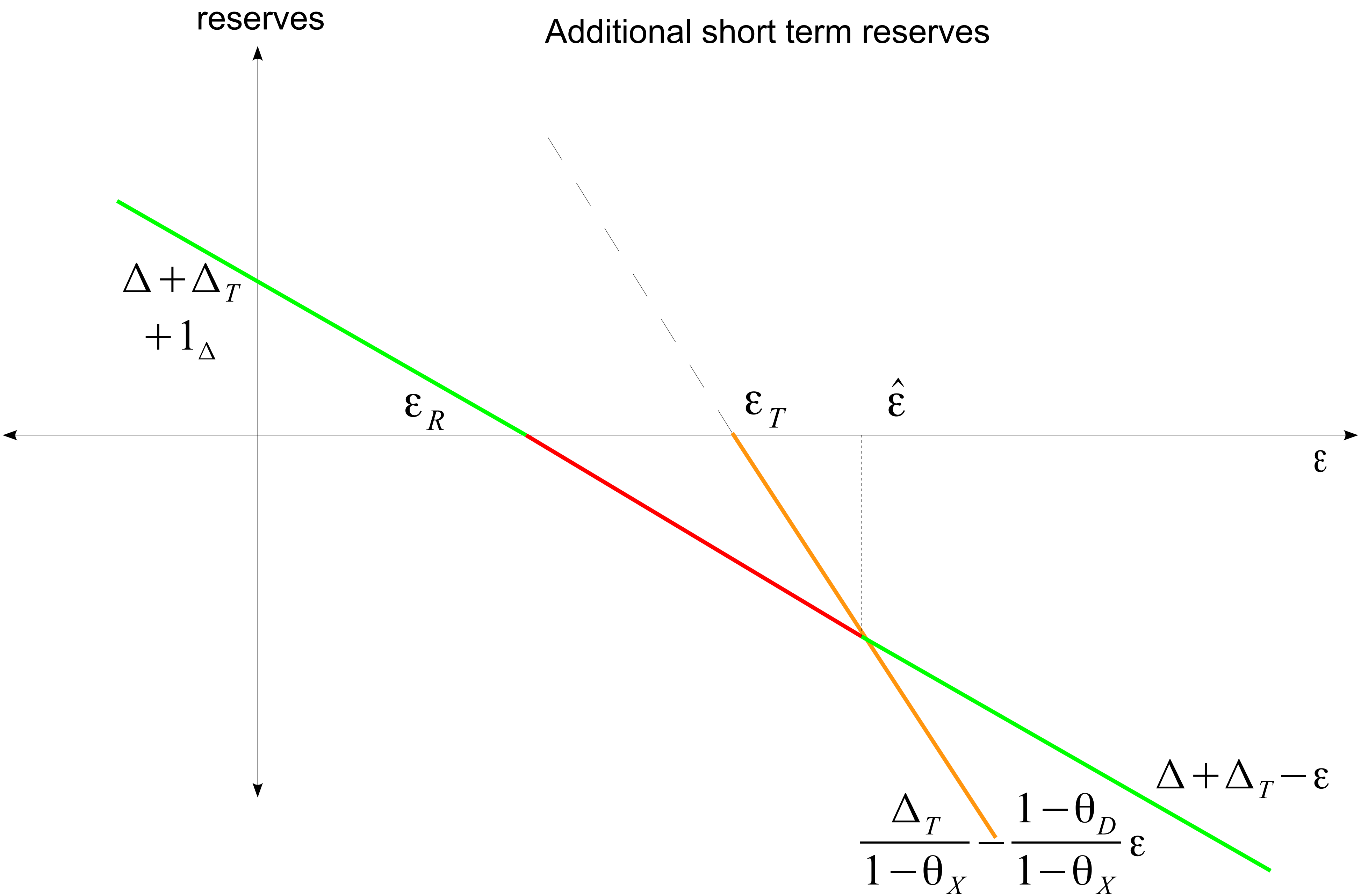
The Bech-Keister Model

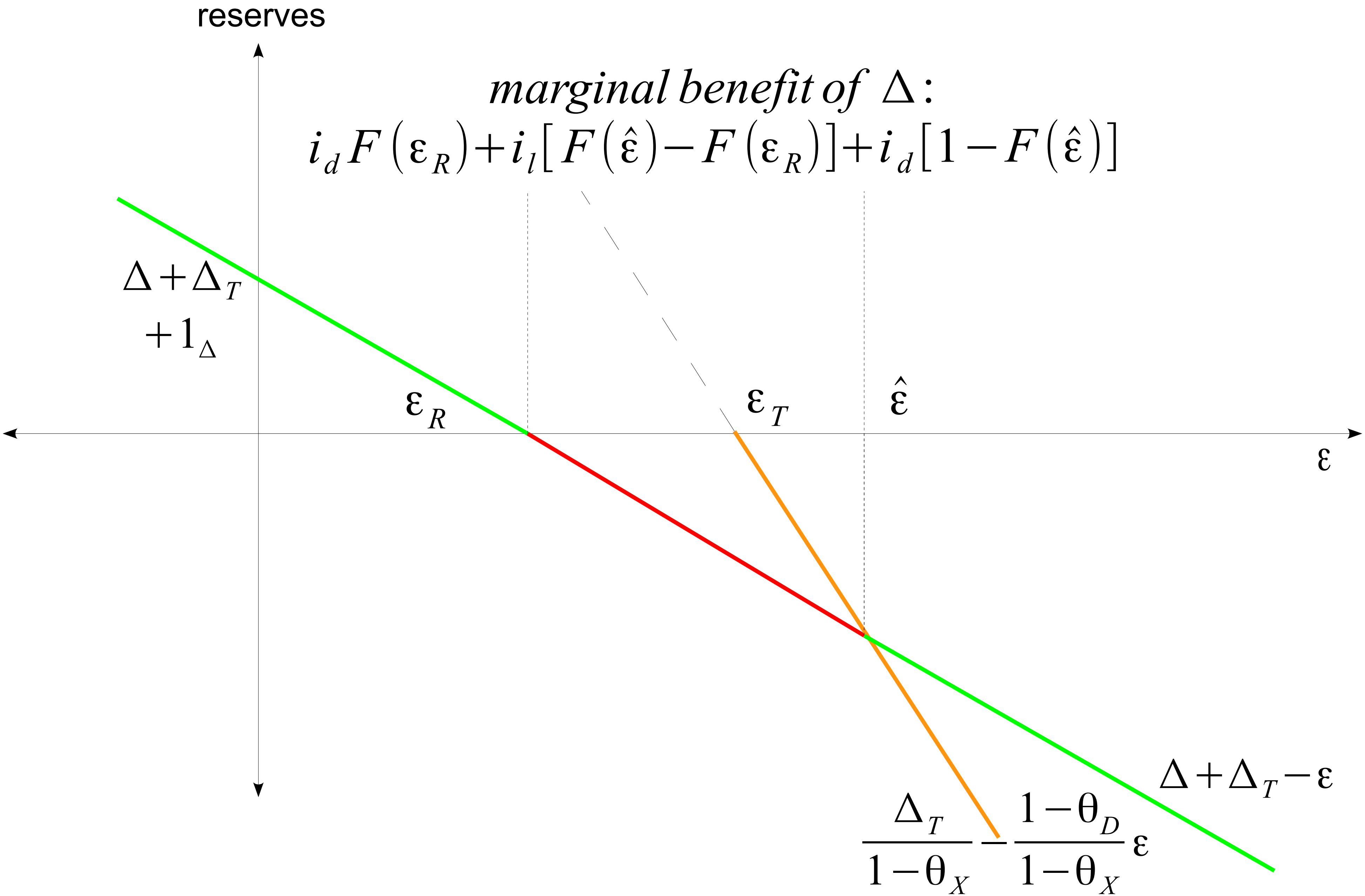
- Reserve requirement
- LCR

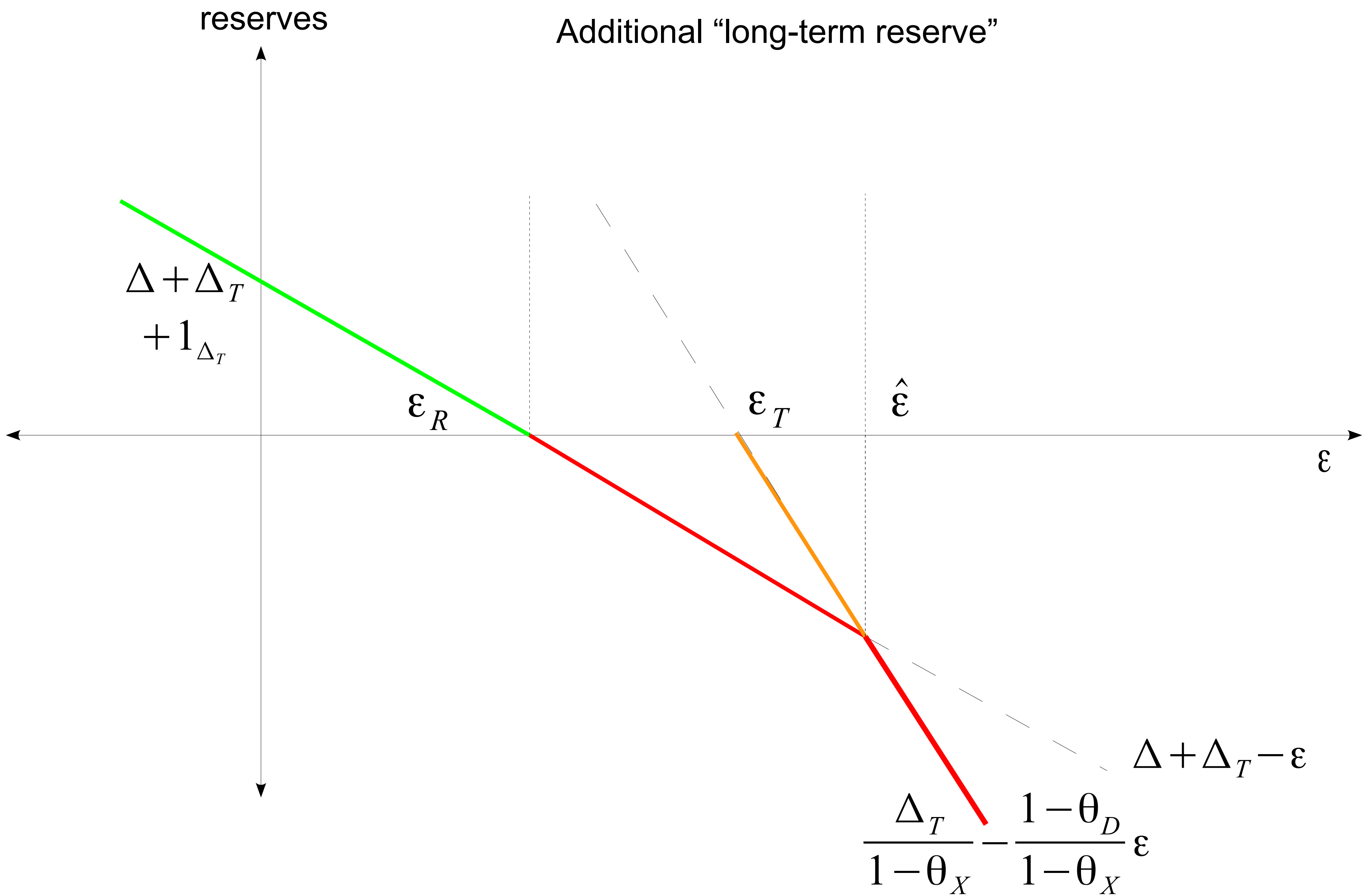
$$Liquidity\ coverage\ ratio: \quad X = \frac{\Delta_T}{(1-\theta_X)} - \frac{(1-\theta_D)}{(1-\theta_X)}\varepsilon$$

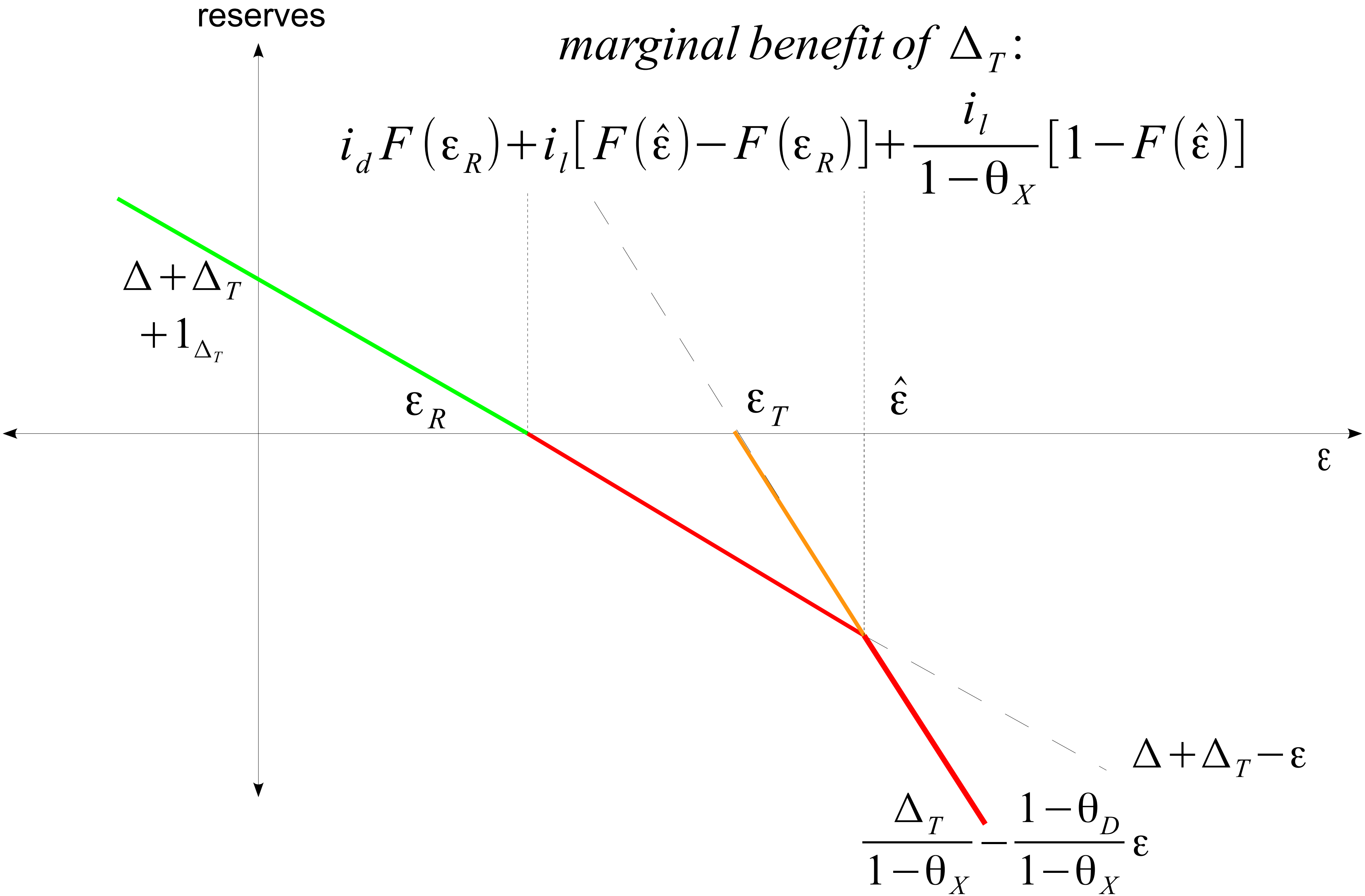

reserves
$\frac{\Delta_T}{1-\theta_X}$
$\Delta + \Delta_T$
ε_R
ε_T
$\hat{\varepsilon}$
ε
$\Delta + \Delta_T - \varepsilon$
$\frac{\Delta_T}{1-\theta_X} - \frac{1-\theta_D}{1-\theta_X}\varepsilon$


reserves
$\Delta + \Delta_T$
ε_R
ε_T
$\hat{\varepsilon}$
ε
$\Delta + \Delta_T - \varepsilon$
$\frac{\Delta_T}{1-\theta_X} - \frac{1-\theta_D}{1-\theta_X}\varepsilon$


reserves
Additional short term reserves
$\Delta + \Delta_T + 1_\Delta$
ε_R
ε_T
$\hat{\varepsilon}$
ε
$\Delta + \Delta_T - \varepsilon$
$\frac{\Delta_T}{1-\theta_X} - \frac{1-\theta_D}{1-\theta_X}\varepsilon$


reserves
marginal benefit of Δ:
$i_d F(\varepsilon_R) + i_l[F(\hat{\varepsilon}) - F(\varepsilon_R)] + i_d[1 - F(\hat{\varepsilon})]$
$\Delta + \Delta_T$
$+1_\Delta$
ε_R
ε_T
$\hat{\varepsilon}$
ε
$\Delta + \Delta_T - \varepsilon$
$\frac{\Delta_T}{1-\theta_X} - \frac{1-\theta_D}{1-\theta_X}\varepsilon$


reserves
Additional "long-term reserve"
$\Delta + \Delta_T + 1_{\Delta_T}$
ε_R
ε_T
$\hat{\varepsilon}$
ε
$\Delta + \Delta_T - \varepsilon$
$\frac{\Delta_T}{1-\theta_X} - \frac{1-\theta_D}{1-\theta_X}\varepsilon$


reserves
marginal benefit of Δ_T:
$i_d F(\varepsilon_R) + i_l [F(\hat{\varepsilon}) - F(\varepsilon_R)] + \frac{i_l}{1-\theta_X}[1 - F(\hat{\varepsilon})]$
$\Delta + \Delta_T$
$+ 1_{\Delta_T}$
ε_R
ε_T
$\hat{\varepsilon}$
ε
$\Delta + \Delta_T - \varepsilon$
$\frac{\Delta_T}{1-\theta_X} - \frac{1-\theta_D}{1-\theta_X}\varepsilon$

Summary of interesting results

- short rate in Bech-Keister < short rate in Poole
- The difference is bigger as the LCR is more likely to bind
- short-term rate decreases to deposit rate with large liquidity shock, or when the LCR is likely to bind...
- ...so draining reserves with non-HQLA may lower the overnight rate

Summary of interesting results

- the overnight borrowing volume is likely to decline as the LCR is more likely to bind

- Yield curves will be steeper at shorter maturity

Comments

- In equilibrium no net borrowing $\Delta = \Delta_T = 0$

- Implications on volumes?

- Term-funding volume is likely to increase

Comments

- Term-funding market is different from overnight market

- What is term-funding here?
  - Uncollateralized
  - Collateralized with NHQ-asset

- Only few/fewer counterparties would lend long-term relatively unsecured

Comments

- Segmentation likely to affect the results: dampen overnight lending?
- Could overnight loans “mutate”?
  - Any overnight loans can be replicated with term-funds borrowing/lending
  - Overnight rate given by “arbitrage”

Conclusion

- Very elegant paper
- Captures the main forces
- Main question: Where will banks position their LCR?