

$$S_t$$

$$(S_t - K)^+ \rightarrow \text{firm's profit}$$

$$(A_t - K)^+ \rightarrow \text{OWN Cost (insp. firm's profit)}$$

$$\begin{aligned} & \text{---} \\ & \text{---} \end{aligned}$$

$\frac{S_t}{K}$   
 $\frac{A_t}{K}$

$$(S_t - K)^+$$

$$(A_t - K)^+$$

$\frac{A_t}{K}$   
 $\frac{S_t}{K}$

$$dX_t = \mu(t, X_t) dt + \sigma(t, X_t) dW_t$$

$\exists! X_t$

$\mu, \sigma: \mathbb{R} \rightarrow \mathbb{R}$  Suffic.

$(\mathcal{F}_t, \mathbb{P})$

$\exists C$  ①  $|\mu(t, x) - \mu(t, y)| + |\sigma(t, x) - \sigma(t, y)| < C|x - y|$

②  $|\mu(t, x)| + |\sigma(t, x)| < (1 + |x|)^\alpha$   $\forall x, t \in \mathbb{R}^+$

Suff  $\exists!$

2.1

$$dX_t = (a - bX_t) + X_t^\alpha dW_t \quad \text{Lip + Slow growth}$$

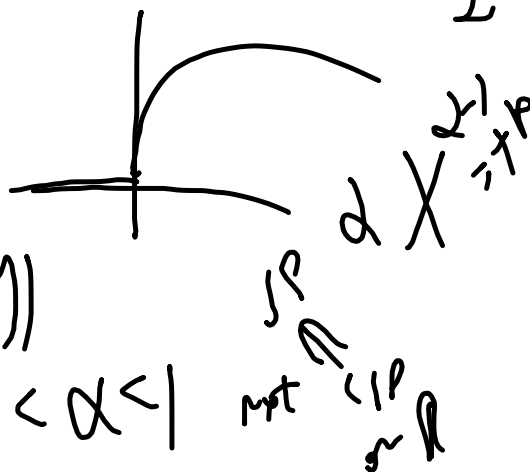
$$\begin{matrix} \alpha > 0 \\ \textcircled{X^\alpha} \end{matrix}$$

$$0 < \alpha < 1$$

$$|f(x) - f(y)| \leq \frac{1}{n} |f'(1)| |x - y|$$

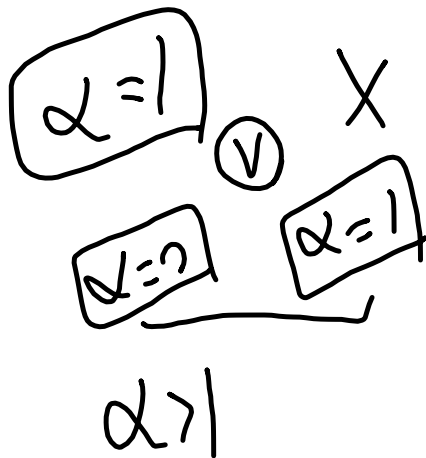
$$0 < \alpha < 1$$

$$\begin{matrix} \textcircled{V} \\ \textcircled{V} \end{matrix} \quad \begin{matrix} \mu = a - bX \\ \sigma = X^\alpha \end{matrix}$$



$$\begin{matrix} \text{IP} \\ \text{not } \textcircled{IP} \\ \text{or } \textcircled{IP} \end{matrix}$$

$\alpha = 1/2$  Heston Model



Lip

$$X < 1 + |X|$$

$$\Theta = \{0, 1\} \text{ s.t. } \alpha < 1$$

$\exists!$   $\rightarrow$   $\text{PUT NOT THIS ASS}$

