On Fintech and Financial Inclusion

Thomas Philippon

New York University, NBER, CEPR

BIS, June 2019

Back to 2016

- Three years ago, Hyun asked me to write a paper for the 2016 BIS conference about
  - Financial structure (banks vs markets) and economic growth
  - The role and size of the financial sector
- I chose a slightly different angle and I wrote...

The FinTech Opportunity

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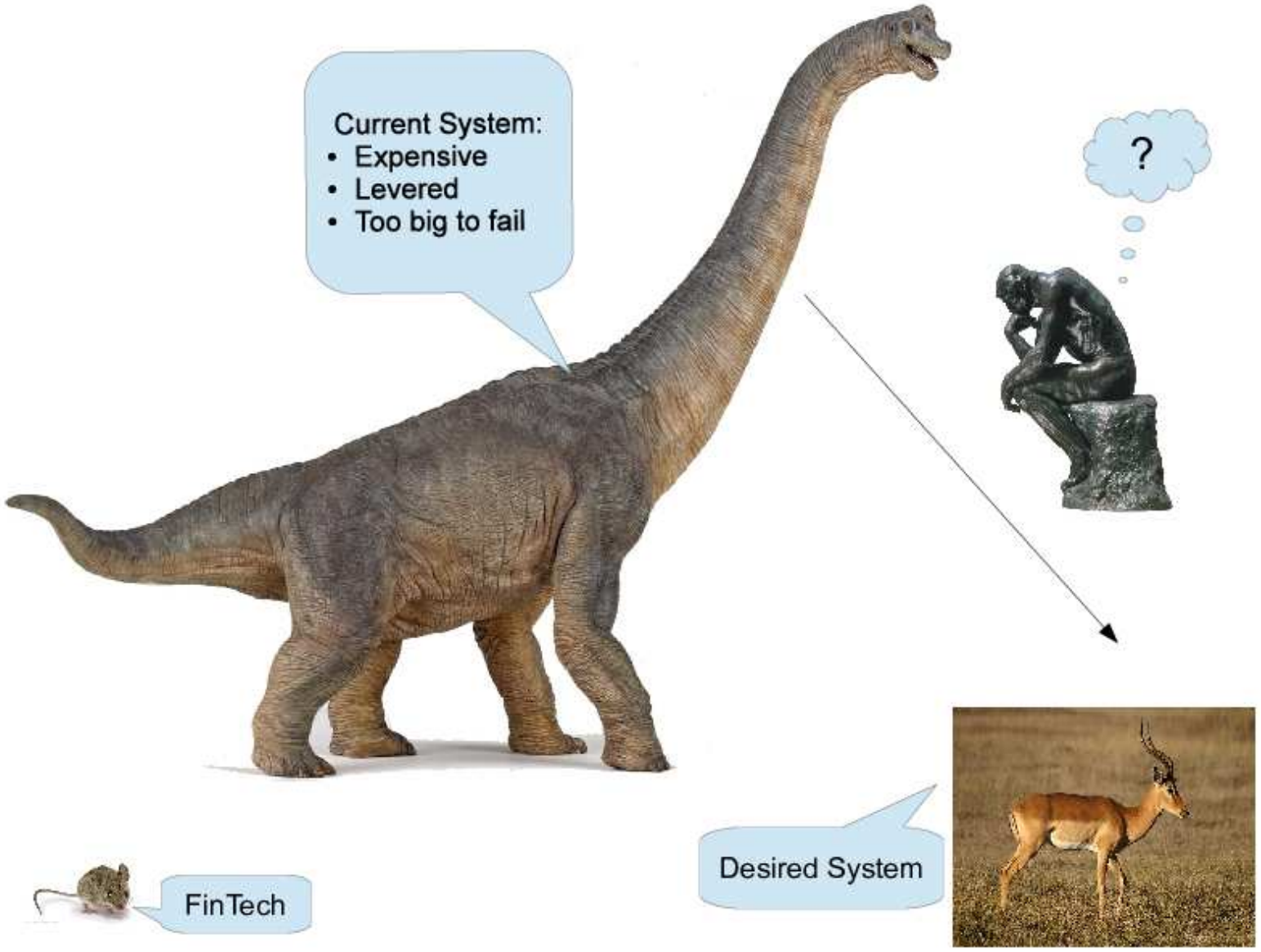
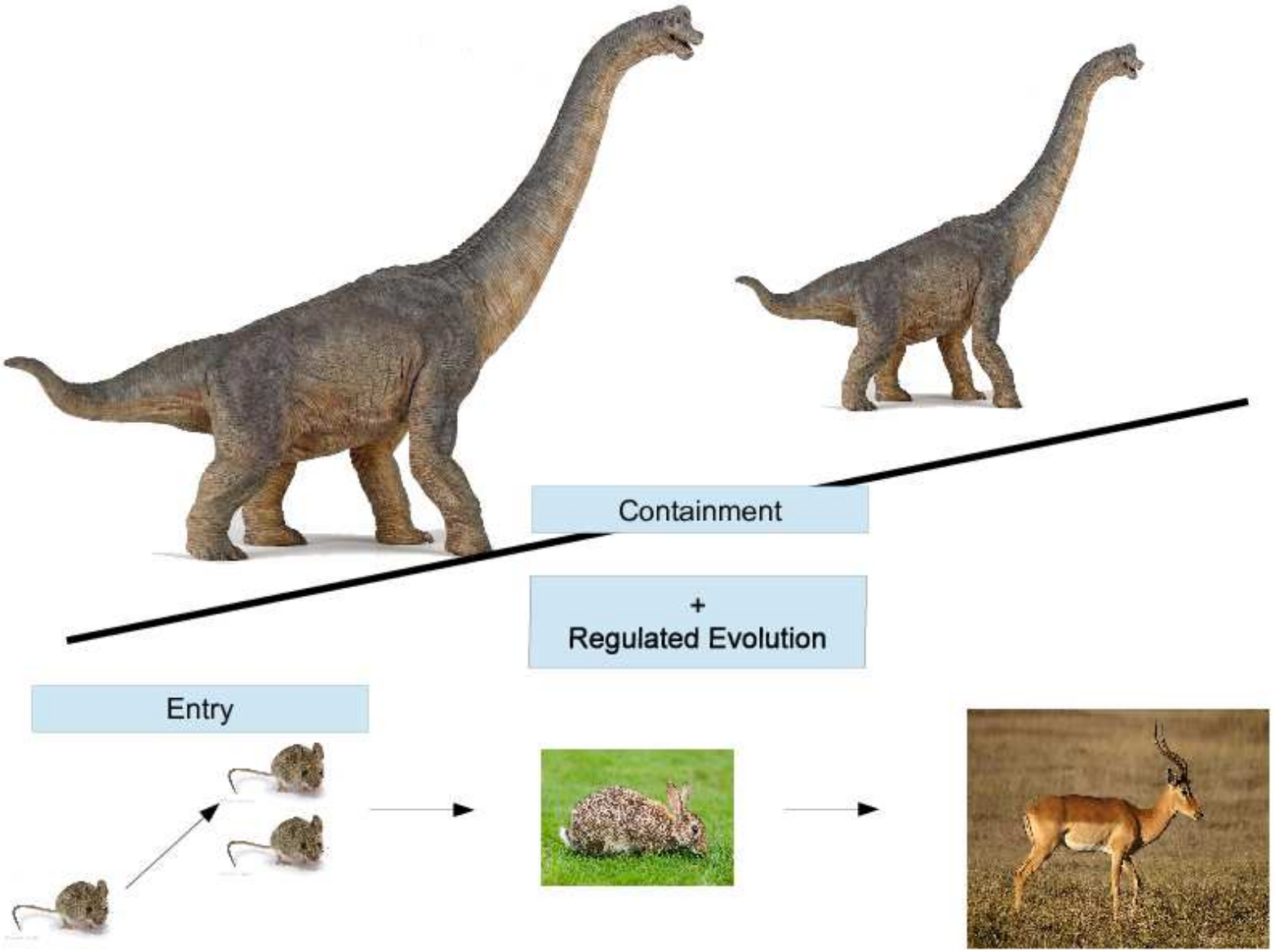
June 2016, BIS Conference

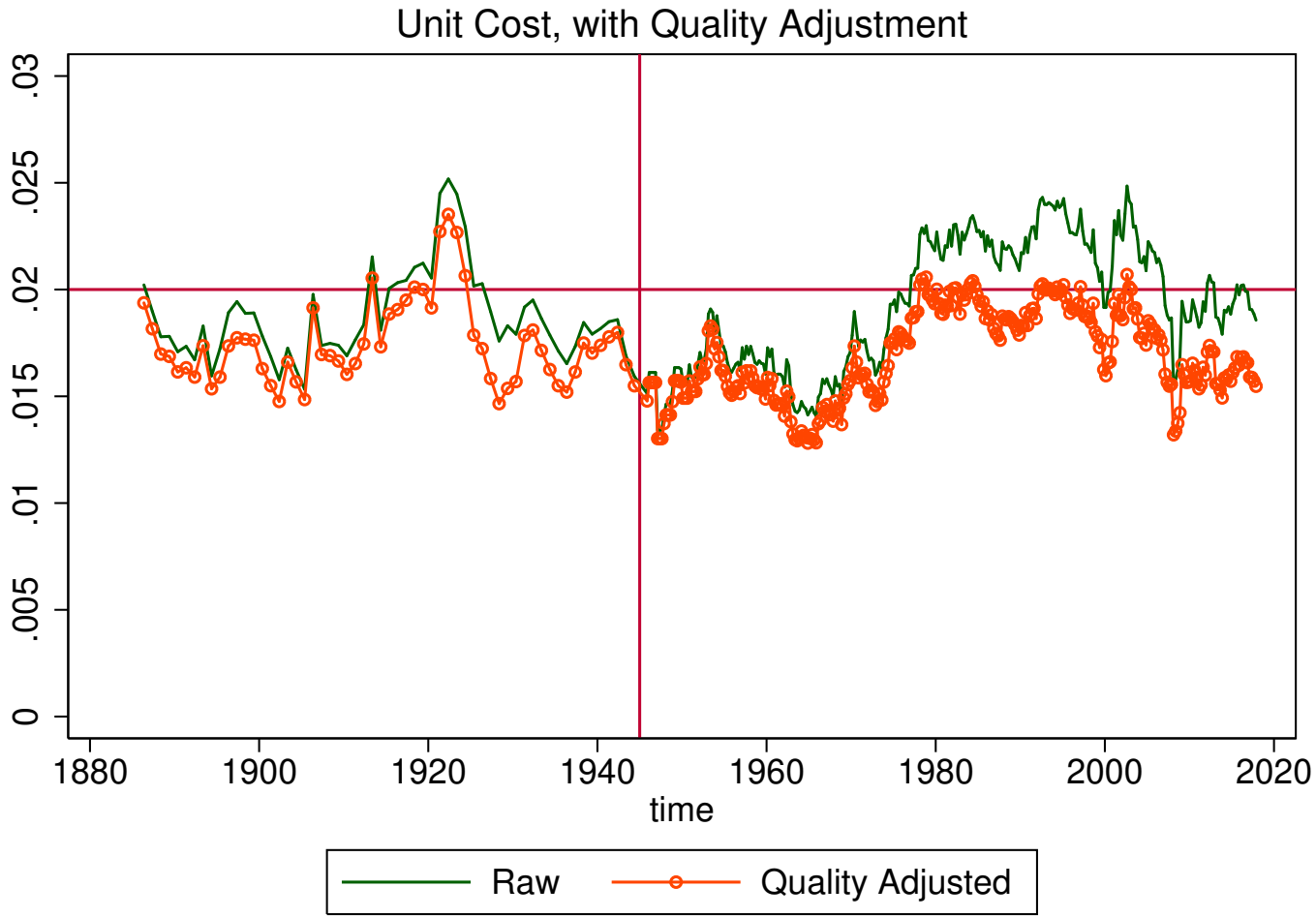
2016: "My Summary of the Existing System"



2016: "My Proposal"



Unit Cost of Finance (US)



Source: Philippon (AER, 2015, updated)

2016: "This Will Not Happen Automatically"

Lack of Strategic Regulation

Entry

Will AI and Big Data Democratize Finance or Increase Inequality?

1. Asset Management
2. Lending

Asset Management

- N financial intermediaries and households with wealth $\sim G(w)$
- Direct investment vs asset management services
  - $\underline{\mathrm{R}} < \bar{R}$ but fee $f(w)$
  - Pricing $f(w) = \phi + \mu_N w$

A Tale of Two Fixed Costs

- Equilibrium has two equations $(\phi, \Phi) \Rightarrow (\bar{w}, N)$
  - Cutoff for access to services

$$\bar{w} \equiv \frac{\phi}{\bar{R} - \underline{R} - \mu_N}.$$

  - Free entry by intermediaries

$$\frac{\mu_N}{N} \int_{\bar{w}}^{\infty} w dG(w) = \Phi$$

- Welfare

$$W = \int_0^{\bar{w}} \underline{R} w dG(w) + \int_{\bar{w}}^{\infty} \left(\bar{R} w - \phi\right) dG(w) - N\Phi$$

Fintech is Good for Access

- Traditional "banking" vs new "fintech": $\Phi_F > \Phi_B$ but $\phi_F < \phi_B$
- **Proposition: Democratization of financial services**: *If fintech entry is profitable in traditional equilibrium, then participation increases:* $\bar{w}^F < \bar{w}^B$.
  - The two fixed costs have very different implications for inequality.
  - Rich households subsidize the fixed entry cost of fintech firms, poor households benefit from low relation cost.

Lending

- Break-even rate

$$R_{\mathscr{J}} = \mathbb{E}\left[x \mid \mathscr{J}\right]$$

- Non-minority $x_0 \sim N\left(0, \sigma_x^2\right)$ vs Minority $x_1 \sim N\left(m, \sigma_x^2\right)$
- Banks

$$\tilde{x}_{i,B} = x_i + \varepsilon_{i,B}$$

- Fintech

$$\tilde{x}_{i,F} = x_i + \varepsilon_{i,F}$$
$$\tilde{z}_i = z_i + \eta_i$$

Statistical Discrimination

- Welfare

$$L(\mathscr{I}) = \underbrace{\mathbb{E}\left[\left(x - R_{\mathscr{I}}\right)^2\right]}_{\text{Inefficiency}} + \theta \underbrace{\left|\mathbb{E}\left[R_{\mathscr{I}} \middle| x, z = 1\right] - \mathbb{E}\left[R_{\mathscr{I}} \middle| x, z = 0\right]\right|}_{\text{Discrimination}}$$

- Banks

$$\text{Discrimination} = \mathbb{E}\left[R_{\mathscr{I}} \middle| x, \text{minority}\right] - \mathbb{E}\left[R_{\mathscr{I}} \middle| x, \text{non-minority}\right] = 0$$

- Fintech
  - Higher efficiency but higher discrimination

Conclusion

- Finally some sign that Finance is getting better and cheaper
- Tradeoffs differ across activities
  - Savings, asset management: win/win
  - Lending: risk of discrimination, critical role of objective function