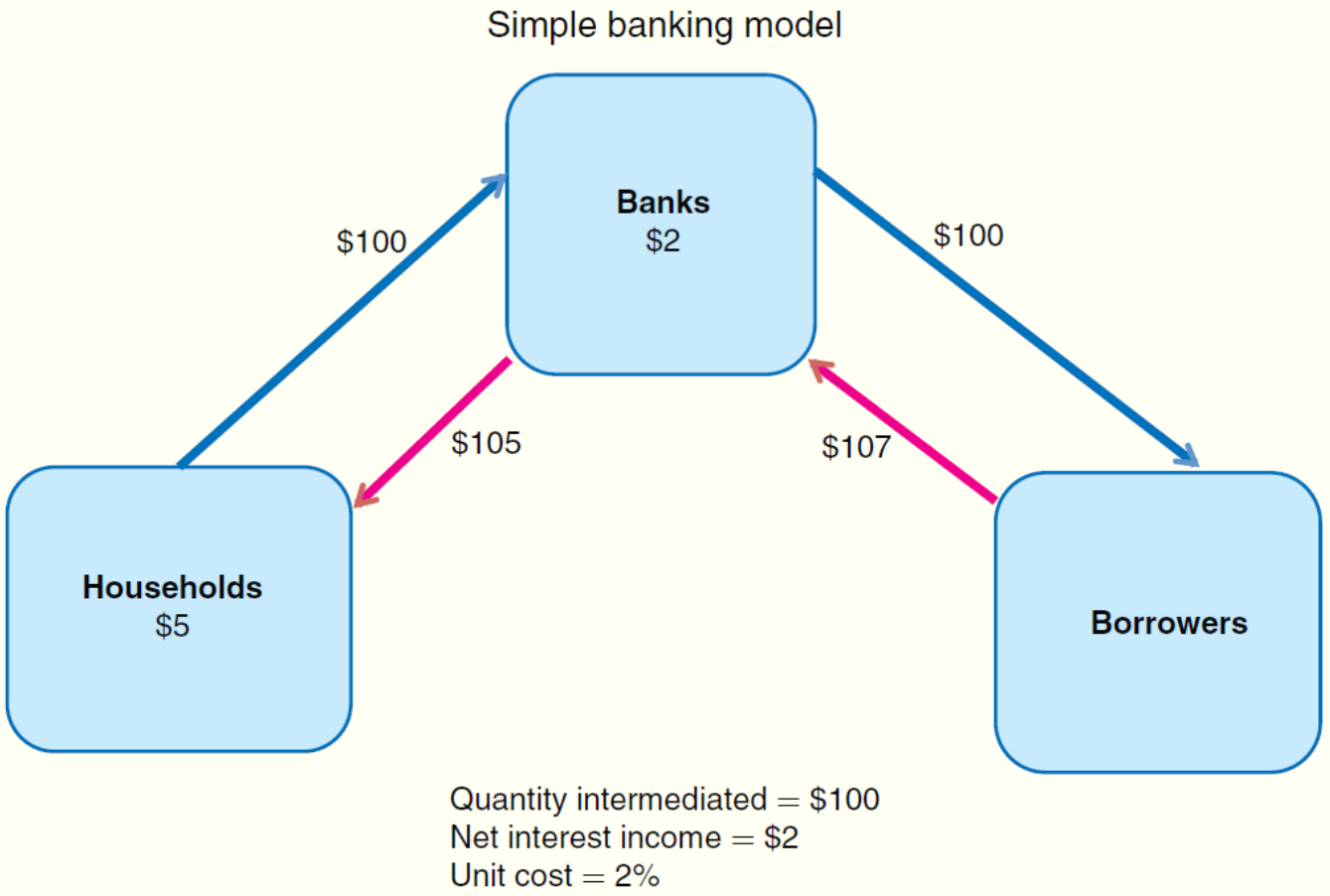
The FinTech opportunity:
The cost of financial intermediation

Financial intermediation

- Intermediation model



The cost of financial intermediation

- Financial intermediaries
  - Commercial banks, investment banks
  - Mutual funds, hedge funds, financial advisors, etc.
- Unit cost of financial intermediation (ψ)
  - ψ = User's cost of finance - Saver's return
- ψ in reality
  - Interest spread

    e.g. 10-year mortgage rate – 10-year time deposit rate
  - Fees

    e.g. Mutual fund: 1% annual management fee + 0.3% redemption fee

    Venture capital: 2% annual management fee + 20% performance fee

The cost of financial intermediation

- How to measure ψ with real data?
- Why ψ matters economically?
- What's the economic implications for FinTech?

The cost of financial intermediation

- The big picture
  - Total income of the financial industry = ψ × All intermediated assets
  - **ψ = Total income of the industry / Total value of intermediated assets**

- Share of industry contribution to GDP

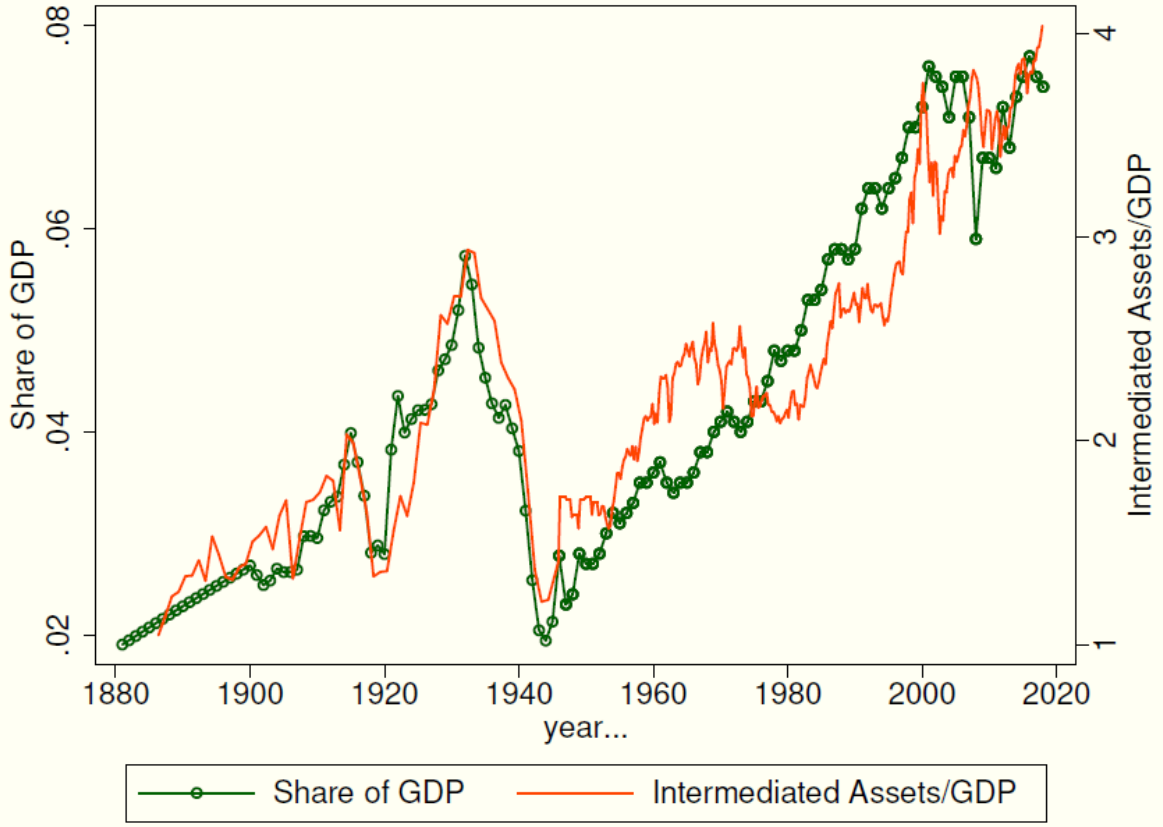
$$\frac{y_t^f}{y_t} = \frac{\text{Value Added of Finance Industry}}{\text{GDP}}$$

- For example, if the share of financial sector to US GDP is 0.07 and the GDP is 20.54 tn , we can derive y_t^f or the total income of the industry in 2018, ~$1.44 tn

The cost of financial intermediation

- Total income & intermediated assets

Figure 1: Finance Income and Intermediated Assets



The cost of financial intermediation

- Intermediated assets
  - Consumer debt
  - Corporate debt
  - Equity
  - Liquidity service

- Measure: New flows + Existing stocks

$$q_t = q_t^{flow} + q_t^{level}$$

- New flows
  - New corporate bond issuance (e.g. $1.41 tn in 2018)
  - New consumer debt (e.g. home mortgage)
  - IPOs & other equity issuance
  - M&A deals

$$q_t^{flow} = b_{c,t}^{flow} + b_{k,t}^{flow} + 3.5e_{k,t}^{flow} + M\&A_t.$$

The cost of financial intermediation

- Intermediated assets
  - New flows + Existing stocks

$$q_t = q_t^{flow} + q_t^{level}$$

- Existing stocks
  - Existing consumer debt
  - Existing corporate debt
  - Market value of stocks (e.g. $30 tn in 2018)
  - Liquidity services (currency, deposits, and money market funds)

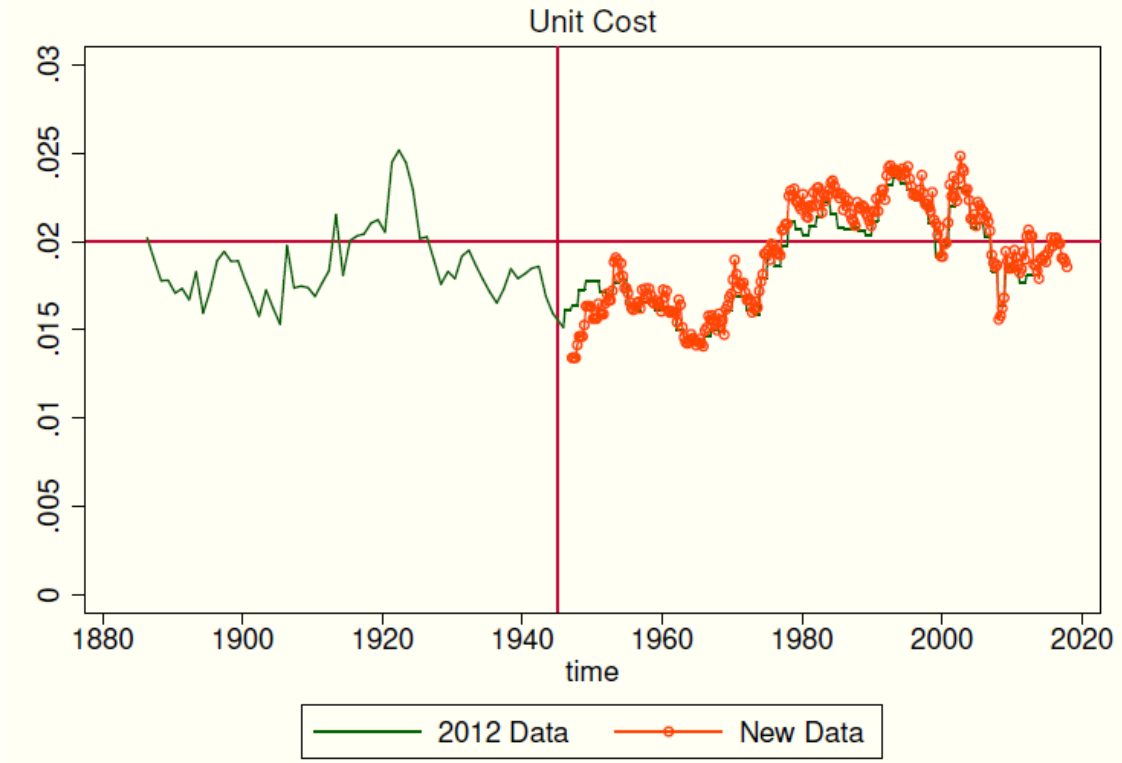
$$q_t^{level} = b_{c,t}^{level} + b_{k,t}^{level} + e_{k,t}^{level} + m_t$$

- **ψ** = y_t^f / $q_t = q_t^{flow} + q_t^{level}$

The cost of financial intermediation

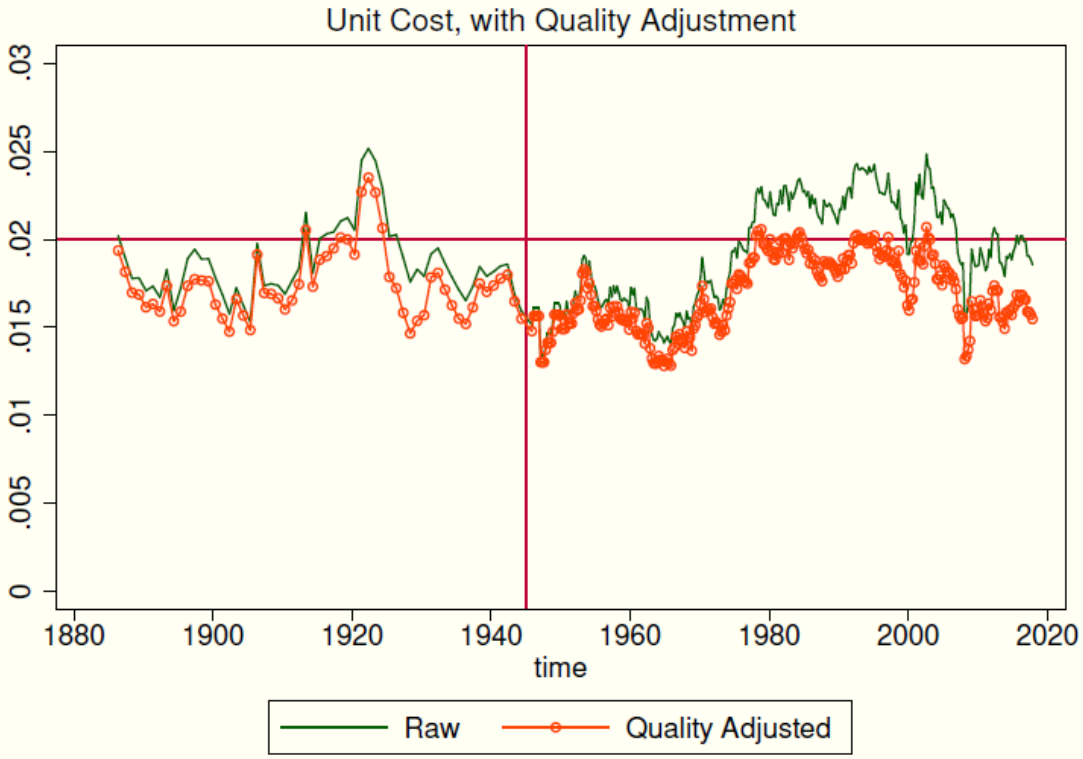
- Unit cost of financial intermediation

Figure 2: Unit Cost of Financial Intermediation



The cost of financial intermediation

- Quality adjustment
  - Share of low-cash firms in the financial market
  - Share of new household borrowers



Why ψ matters?

- Economic modeling
  - Households have savings and labor income. Their utility functions are determined by consumption and holdings of liquid assets. Households maximize their utility by choosing the optimal level of consumption, saving, and liquidity for each period.
  - Firms borrow capital from households for production. Firms maximize their profits by choosing the optimal level of capital and labor input.
  - Firm borrowing is intermediated by the financial industry and the intermediation cost is ψ.
- In equilibrium
  - A smaller ψ leads to …
  - More consumption, more liquidity, more investment, higher GDP…
  - In sum, larger economic welfare

What are the implications?

- Difference between waves of financial innovation
  - ATM, digitalization, …
  - CDS, CDO, …
  - PayPal, Wealthfront, …
- FinTech in the eyes of regulators
  - Why to support FinTech?
  - What types of FinTech should be encouraged?
  - Which sector should open to FinTech?