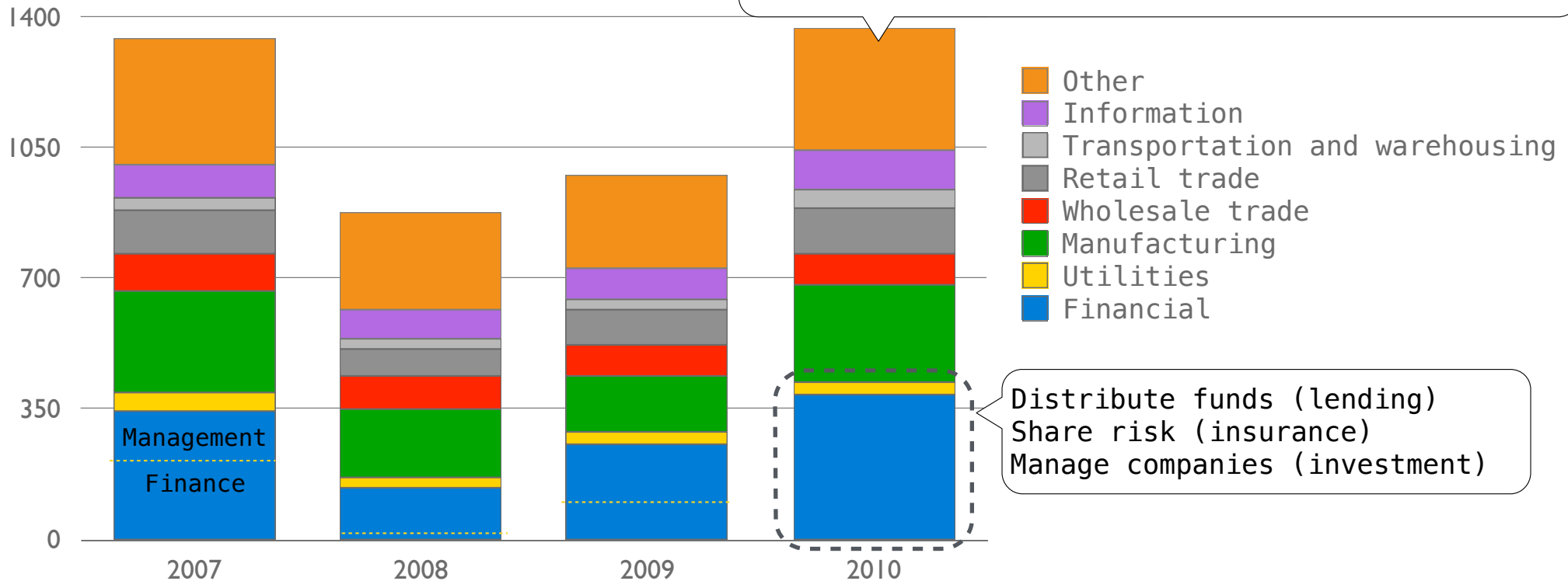


Finance

Wednesday, October 8

Finance Industry

US Corporate Profits by Sector (\$ Billions)



agriculture, forestry, fishing, and hunting; mining; construction; real estate and rental and leasing; professional, scientific, and technical services; administrative and waste management services; educational services; health care and social assistance; arts, entertainment, and recreation; accommodation and food services; and other services

Distribute funds (lending)
Share risk (insurance)
Manage companies (investment)

Why Are Markets Useful?

Trade is useful because it often benefits both parties and encourages specialization

Public markets are useful because they facilitate trade among many parties

Stable public markets are useful because they establish prices and encourage planning

- Samsung Line-16 fabrication plant cost \$10.2 billion to build (2011)
- Stock prices enable companies to borrow/raise money

How do stock markets actually work now?

Programs define strategies... ~~that roll dice~~
that make offers

```
def always_roll(n):  
    def strategy(s0, s1):  
        return n  
    return strategy
```



Economic Efficiency, Market Efficiency, and Information

Economic (Allocative) efficiency arises from combining free markets + perfect competition:

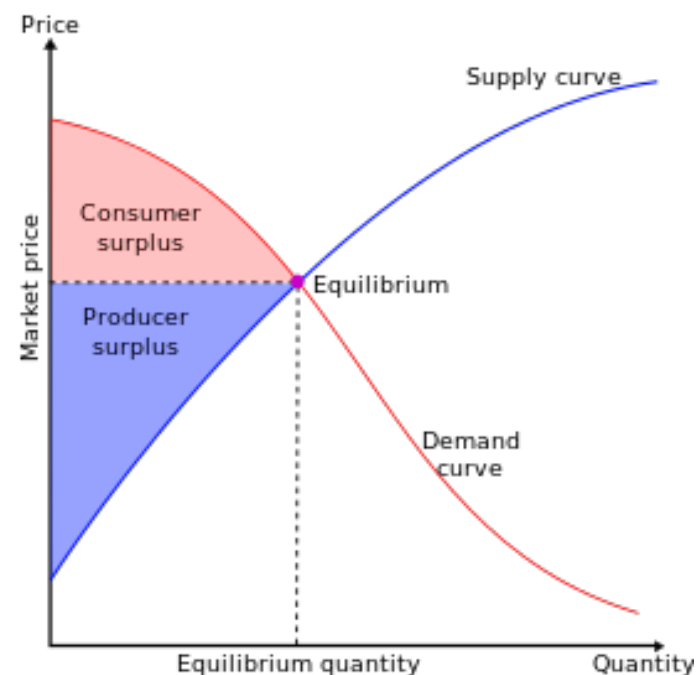
- Prices are equal to marginal costs
- Trade maximizes consumer surplus (difference between what people *would pay* and *do pay*)

These conclusions require assumptions that never hold: perfect rationality, no externalities, perfect information, no market power, no product differentiation, etc.

Market efficiency arises when market prices fully reflect available information

- No investment strategy can consistently outperform the market average, except through luck

Requires weaker assumptions (e.g., agents are unbiased in their irrationality), but even those probably don't hold in practice



Are Markets Fair?

Imagine an "economic marketplace in which there is a *population* of actors, each of which has a level of wealth (a single number) that changes over time."

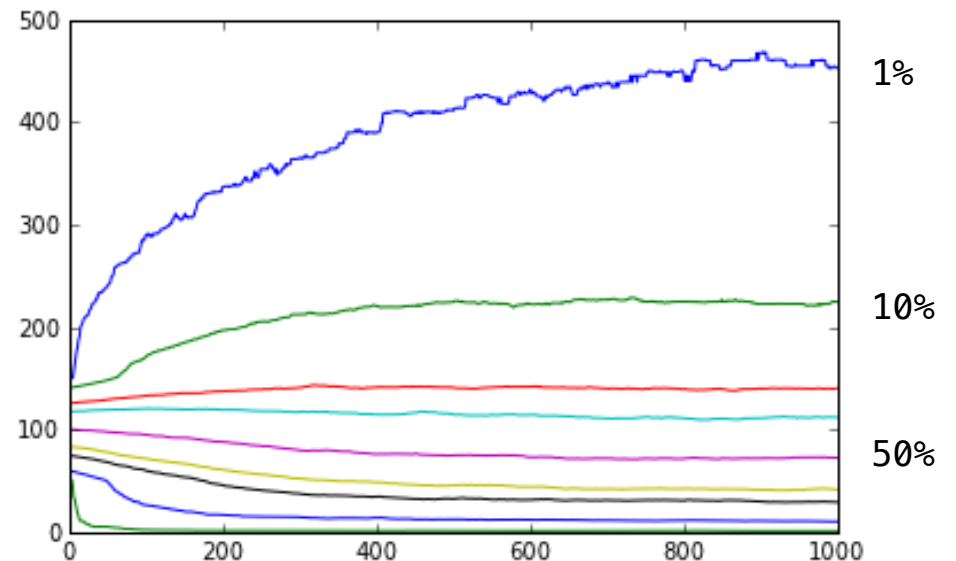
On each time step, two randomly chosen agents X and Y exchange wealth by a simple rule:

```
def random_split(X, Y):  
    "Take all the money in the pot and divide it randomly between X and Y."  
    pot = X + Y  
    m = random.uniform(0, pot)  
    return m, pot - m
```

"Out of the N=5000 actors, we will record the wealth of exactly nine of them:

the ones, in sorted-by-wealth order that occupy the 1% spot (the 50th wealthiest actor), then the 10%, 25%, 1/3, and median;

and then likewise from the bottom the 1%, 10%, 25% and 1/3."



Opportunity Cost of Human Effort

The most important concept in economics is...

Opportunity cost: the value of the best alternative that wasn't chosen

Each year spent gambling is a year not spent building something useful

Each year spent studying is a year not spent building something useful

Employees of finance and insurance companies: 5,927,800 (September 2014)

Data series	Employment, 2013
<u>Accountants and auditors</u>	96,910
<u>Insurance sales agents</u>	346,170
<u>Loan officers</u>	264,820
<u>Securities, commodities, and financial services sales agents</u>	308,590
<u>Tellers</u>	520,710

<http://www.bls.gov/iag/tgs/iag52.htm>