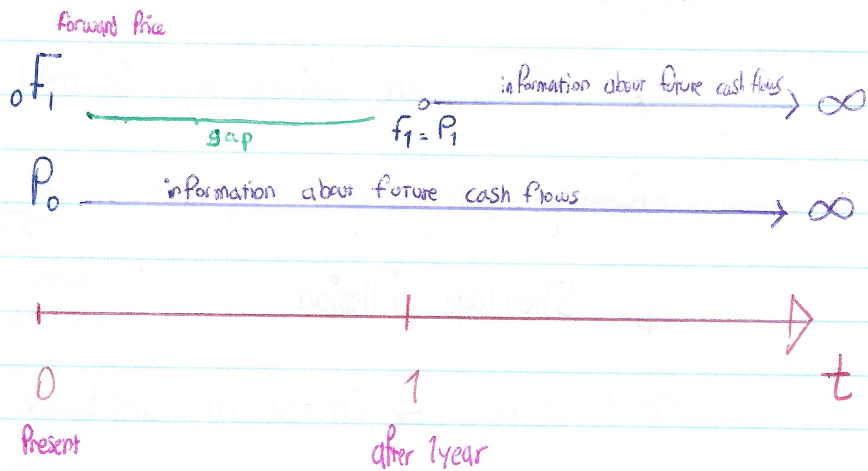


## Correlation between $\Delta P$ & $\Delta F$



Except for the gap within which forward contracts take place, forward prices and spot prices are highly correlated.

\* Forward markets enhance informational efficiency.  $\rightarrow$  more information in less time

Investor	Period A	Period B	$\Sigma$
I	\$ 60	\$ 40	\$ 100
II	90	50	140
III	40	70	110

$$H_0: P_A^* = \$ 160$$

$$H_0: P_B^* = \$ 70$$

$$\rightarrow H_0: {}_A F_B^* = E(P_B^*) = \$ 70$$

More information available from future periods will push the spot price higher as buyers rush through buying forward in Period A.

Check "Futures  
Forward Markets"  
Note on Download folder

## Popular Models

\* Prices are driven by interest rates <sup>Popular</sup> <Economic> Model

Real Estate booms and busts   
 ↗ Bubbles   
 ↘ Crashes   
 because of Jumping on the Bandwagon

— Shortage illusion <sup>Samuel Clemens</sup>

↳ invest in land because they are not making anymore land!

People are afraid of missing out!

Temporary Jumping Price, will make people think that

Prices will persist / continue on rising.

\* Recent Price changes are the primary source of information

<sup>Popular</sup> <Psychology> Model

Stock Market Crashes and Corrections

After price went down, people think it will rise up

again, so they invest in.

Chapter 5 → after midterm or at the end

## Chapter 6. Government Intervention

### ↳ Price Controls

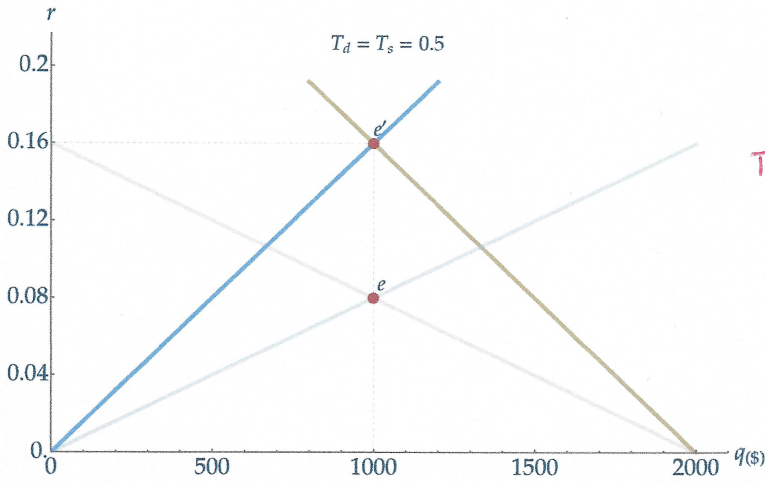
A price ceiling set by the government

### ↳ Price Supports

A price floor set by the government

### ↳ Ad valorem and quantity taxes

### Neutral when tax rates are the same.



After-tax cost of borrowing =  $r'(1 - T_d) = .16(1 - .50) = .08$

After-tax return on lending =  $r'(1 - T_s) = .16(1 - .50) = .08$

Tax Return

$$\begin{aligned} TR &= (r' \times q') \times T_s \\ &= (.16 \times \$1,000) \times .50 \\ &= \$160 \times .50 \\ &= \$80 \end{aligned}$$

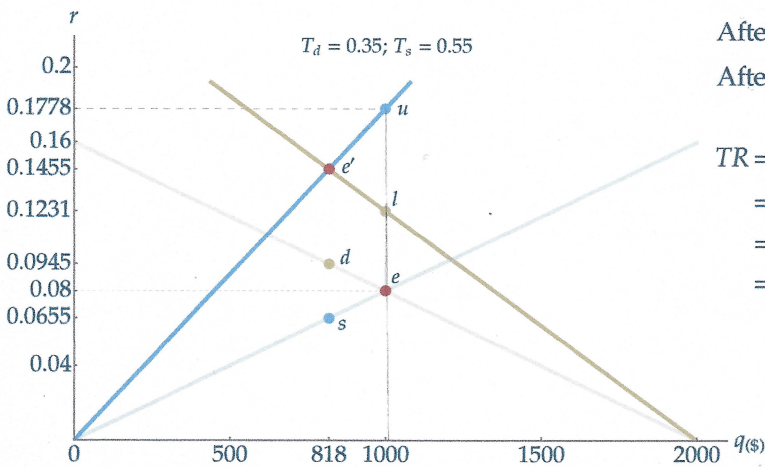
Tax Shield

$$\begin{aligned} TS &= (r' \times q') \times T_d \\ &= (.16 \times \$1,000) \times .50 \\ &= \$160 \times .50 \\ &= \$80 \end{aligned}$$

$$\Delta_{\text{gov't}} = (r' \times q') \times (T_s - T_d) = \$0$$

when supply increases and/or demand increases  $\rightarrow$  Interest rate could only go up  $\uparrow$   
 when demand changes less than supply  $\rightarrow$  Causes a shift in equilibrium

### Non-neutral when tax rates differ.



After-tax cost of borrowing =  $r'(1 - T_d) = .1455(1 - .35) = .0945$

After-tax return on lending =  $r'(1 - T_s) = .1455(1 - .55) = .0655$

$$\begin{aligned} TR &= (r' \times q') \times T_s \\ &= (.1455 \times \$818) \times .55 \\ &= \$119.019 \times .55 \\ &= \$65.46045 \end{aligned}$$

$$\begin{aligned} TS &= (r' \times q') \times T_d \\ &= (.1455 \times \$818) \times .35 \\ &= \$119.019 \times .35 \\ &= \$41.65665 \end{aligned}$$

$$\begin{aligned} \Delta_{\text{gov't}} &= (r' \times q') \times (T_s - T_d) \\ &= (.1455 \times \$818) \times (.55 - .35) \\ &= \$119.019 \times .20 = \$23.8038 \end{aligned}$$

But How much interest rate goes up? It only can be estimated between  $l$  and  $u$ ; but if government must report one it is  $e'$ .  $\rightarrow 0.1455$   $\downarrow 0.1231$   $\downarrow 0.1778$