CH. 13 FINANCIAL MARKETS

- INSTITUTIONS THROUGH WHICH SAVERS DIRECTLY PROVIDE FUNDS TO BORROWERS

BONDS - CERTIFICATE OF DEBT

- FED GOV'T (NO DEFAULT)
- STATE + MUNICIPAL GOV'T (NO INC. TAX)
- BUSINESSES (TAX + RISK)
- RISK ↑ ↔ INTEREST RATE ↑
- **PRINCIPAL** = AMOUNT PAID TO BUY
- INTEREST RATE = REWARD
- **CAPITAL RISK** = PROBABILITY THAT BORROWER WILL FAIL TO PAY A.K.A. DEFAULT
- BONDS = SECURITIES

STOCKS: CLAIM OF OWNERSHIP TO A FIRM (SMALL %)

DIVIDEND: PAYOUT OF PROFITS TO SHAREHOLDERS

INDEXES: ETF (BASKET OF STOCKS)

EXCHANGE TRADED FUNDS

EQUITY

FINANCIAL INTERMEDIARIES

- INDIRECTLY MOVE MONEY

MUTUAL FUND - AN INSTITUTION THAT SELL SHARES FOR STOCKS, BONDS OR OTHER ASSETS

WHY? EXPERTISE
(HEAP DIVERSIFICATION

BANKS - DEPOSITS PAY INTEREST
LOANS AT HIGHER RATES
PROVIDE "MEDIUM OF EXCHANGE"
- CHECKS, ONLINE BILLPAY
PROVIDES "STORE OF VALUE"
- HOLD ASSETS

SECURITIZATION - MANY LOANS
ARE PACKAGED TOGETHER

INVESTING RISKS

- FIRM SPECIFIC RISK → DIVERSIFICATION
- MARKET RISK

ASSET VALUATION

- FUNDAMENTAL ANALYSIS - STUDY COMPANY REPORTS AND GUAGE FUTURE PROSPECTS TO FIND VALUE
- EFFICIENT MARKET HYPOTHESIS
  - ASSET'S PRICE REFLECT ALL CURRENT AVAILABLE INFO
  - RANDOM WALK - CHANGES ARE IMPOSSIBLE TO PREDICT
  - MUTUAL FUNDS BEAT S+P INDEX ONLY 20% OF THE TIME

- MARKET IRRATIONALITY

  - IF RANDOM WALKS ARE TRUE, PEOPLE BET ON DIFFERENT EXPECTATIONS - NOT ALL EXPECTATIONS ARE CORRECT OR RATIONAL
  - GREATER FOOL THEORY

(H.13) SAVINGS

$$Y = C + I + G + NX$$

$$-C \quad -G \quad -NX$$

$$(Y - C - G) - NX = I$$

(Y − C − G): DOMESTIC SAVINGS

NX: FOREIGN SAVINGS

$$+T - T \text{ (TAXES)}$$

$$(Y - C - T) + (T - G) - NX = I$$

(Y − C − T): PRIVATE SAVINGS (HOUSEHOLDS)

(T − G): PUBLIC SAVINGS (GOV'T)

PRIVATE SAVINGS + PUBLIC SAVINGS = NATIONAL OR DOMESTIC SAVINGS (S)

− NEGATIVE UNDER BUDGET DEFICIT

+ POSITIVE UNDER BUDGET SURPLUS

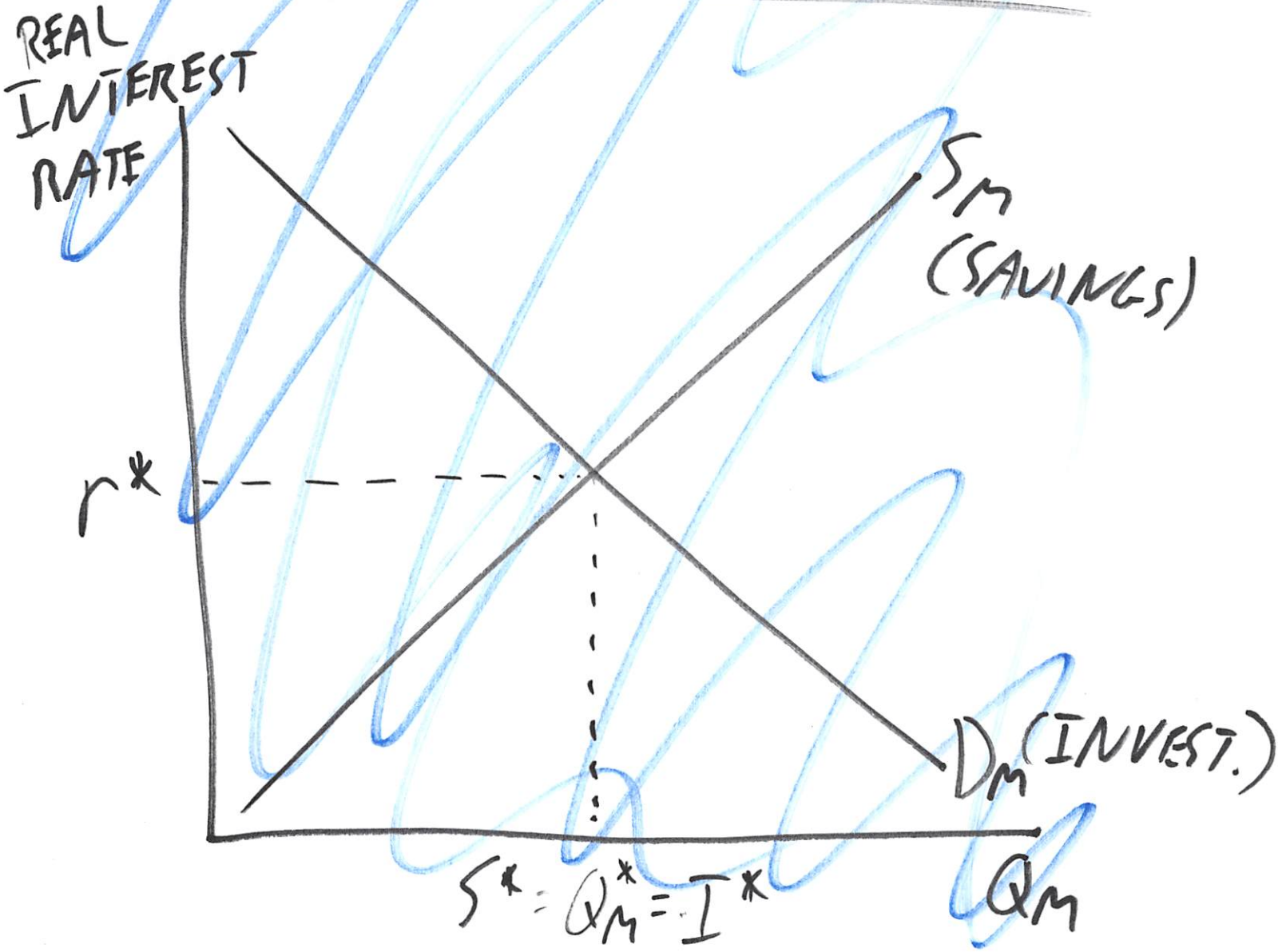
$S - NX = I$

interest rate ↑ → S ↑

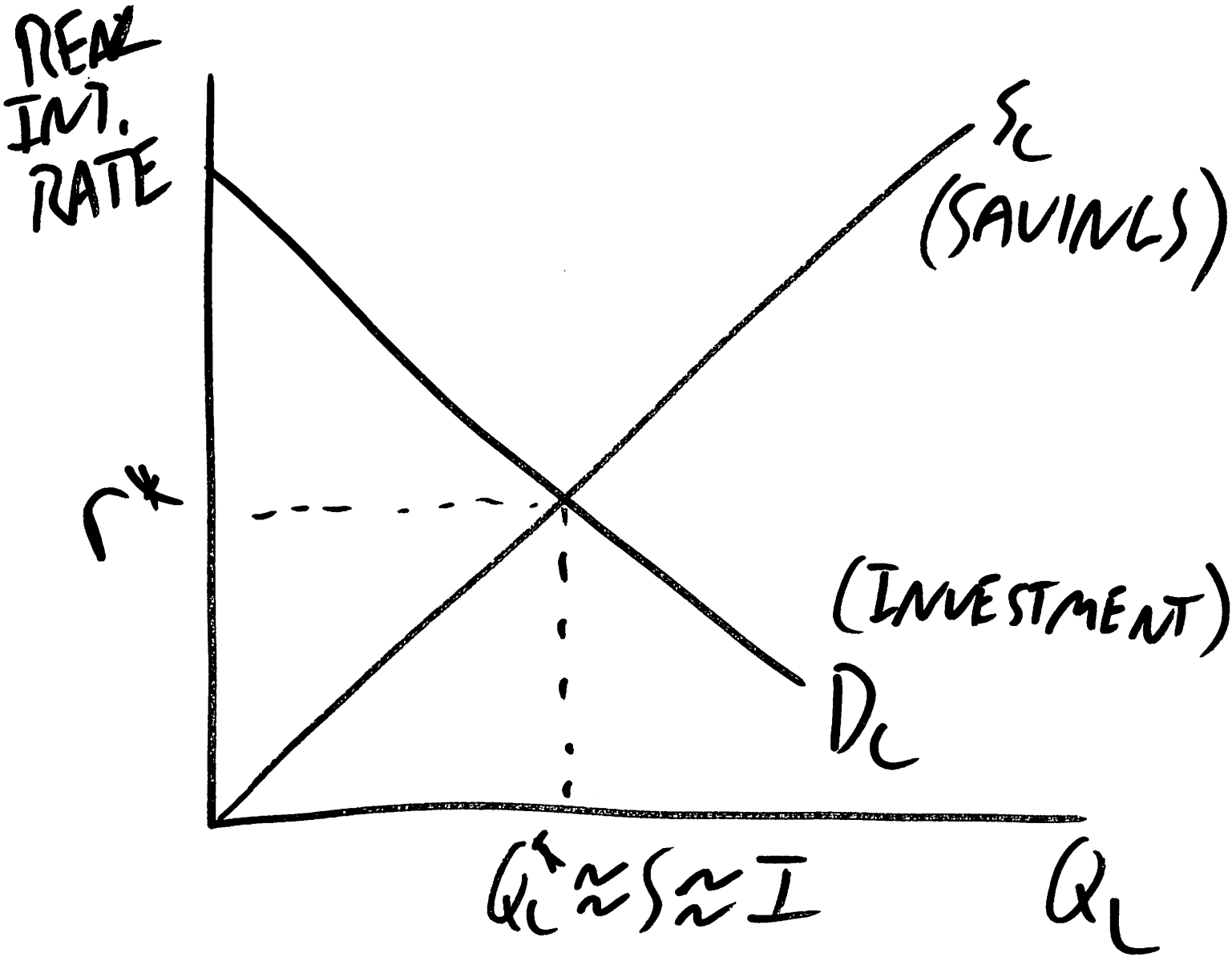
↳ I ↓

MONEY MARKET

↳ MARKET FOR LOANABLE FUNDS



MARKET FOR LOANABLE FUNDS



GROWTH POLICIES

- INCREASE INCENTIVES TO SAVE
  → MORE SAVINGS → SHIFT $S_{[redacted]}$ OUT
- INCREASE INCENTIVES TO INVEST
  → DECREASE CORPORATE TAXES
  → CREATE SUBSIDIES FOR I
  → SHIFT $D_{[redacted]}$ OUT
- DECREASE GOV'T DEFICITS
  → SHIFT $S_{[redacted]}$ OUT
  - "CROWDING OUT EFFECT"
    GOV'T DEFICITS DECREASE PUBLIC SAVINGS (T-G) AND THUS DECREASE I

- DEFICITS AREN'T THE REAL PROBLEM
- REAL PROBLEM:

STABLE RATIO: $\frac{\text{DEBT}}{\text{GDP}}$

HISTORICALLY U.S. ~ 75%

POST-2009 ~ 92%

$790,000,000,000

POST-2010 ~ 100%

DEBT TRAP?

(H.14) INVESTMENT DECISIONS

$$PV \times (1+r)^{Y} = FV$$

↓

PRESENT VALUE = AMOUNT OF MONEY TODAY

FUTURE VALUE (FV) = AMOUNT OF MONEY IN THE FUTURE

r = REAL INTEREST RATE

= NOMINAL INT. RATE - INFLATION

Y = # OF YEARS

1 YEAR CERTIFICATE OF DEPOSIT

CD ~ nominal interest rate = 3%
inflation rate = 1%
r = 2%

$1000 = PV

$1000 \times (1+.02)^1 = FV$

$1020 = FV

2 YEAR CD

$1000 \times (1+.02)^2 = FV$

$1040.40 = FV

COMPOUNDING - ACCUMULATION OF MONEY OVER TIME MAKE INTEREST ON INTEREST

RETIRE IN 50 YEARS

- $2,000,000 IN RETIREMENT
- 7% real interest rate in stocks
- 2% in bonds

$$PV = \frac{FV}{(1+r)^Y} = \frac{2,000,000}{(1+.07)^{50}}$$

$$67,796.61 = \frac{2,000,000}{29.5}$$

- 5% = r AFTER TAXES

$$PV = \frac{FV}{(1+r)^{50}} = \frac{2,000,000}{(1+.05)^{50}}$$

$$173,913 = \frac{2,000,000}{11.5}$$

RISK AVERSION

- DISLIKE OF UNCERTAINTY
  → MORE RISK → HIGHER r

MARKET FOR INSURANCE

- HELP AVOID RISKS
- HEALTH INS., CAR INSURANCE

ADVERSE SELECTION - HIGH RISK

PEOPLE MORE LIKELY TO APPLY AND BENEFIT FROM INSURANCE
→ SMOKERS, EXTREME SPORTS, ELDERLY

MORAL HAZARD - ONCE INSURED,

PEOPLE ARE MORE LIKELY TO DO RISKY THINGS
→ BANKS INVEST BADLY, FORECLOSURE

CH. 15 UNEMPLOYMENT

LABOR FORCE: # OF EMPLOYED WORKERS + UNEMPLOYED SEEKING WORK

UNEMPLOYMENT RATE

$$= 100 \times \frac{\text{UNEMP. SEEKING WORK}}{\text{LABOR FORCE}}$$

ABOUT 4-5% U.S.

TODAY [redacted] 9.0%??

LABOR FORCE PARTICIPATION RATE

$$= 100 \times \frac{\text{LABOR FORCE}}{\text{POPULATION (CONSIDER)}}$$

ABOUT 67% U.S.

NATURAL RATE OF UNEMPLOYMENT

- RATE AT WHICH UNEMPLOYMENT FLUCTUATES
  - NATURAL CHURN
  - U.S. → 5.2%
  - U.K. → 8%
  - FRANCE → 10%
    GERMANY → 6%

UNEMPLOYMENT GOOD MEASURE?

- NOT IN U.S. UNEMPLOYMENT RATE
  UNDEREMPLOYED) - WORKING PART-TI ME
  BUT WANT FULL TIME WORK
  STUDENTS - YUU GUYS (WHO ARE UNEMPLOYED)

DISCOURAGED WORKERS - AREN'T SEEKING WORK BUT WOULD LIKE WORK

MARGINALLY ATTACHED WORKERS

NOT WORKING, NOT SEEKING BUT HAVE ~~SEEKED~~ SOUGHT RECENTLY

REAL WORLD

- TODAY: EDUCATION → LESS UNEMP.
  SOME SECTORS WORSE
- '83-'07: ~95% OF UNEMPLOYMENT STINTS LAST LESS THAN 1 WEEK
  - ABOUT 3% OF THE NATURAL UNEMP. RATE (~~[redacted]~~5%) IS ATTRIBUTABLE TO THOSE WHO HAVEN'T WORKED

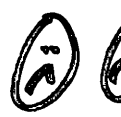
IN 1 YEAR OR MORE

TYPES OF UNEMPLOYMENT

- FRICTIONAL UNEMPLOYMENT 
  - UNEMPLOYED BECAUSE IT TAKES TIME TO FIND A WELL-SUITED JOB
    - ABOUT 3% OF UNEMP. RATE
    - SECTOR TO SECTOR
    - FIRM TO FIRM
- STRUCTURAL UNEMPLOYMENT 
  - INSUFFICIENT # OF LOCAL JOBS CREATES UNEMPLOYMENT
  - MATCHING PROBLEM
    - AVOID WITH UNEMP. AGENCIES
    - PUBLIC TRAINING
    - UNEMP. INSURANCE (COULD)
    - POWER OF LUGGAGE

UNEMPLOYMENT LINE IN BROKESVILLE (LABOR FORCE=100)

WEEK 1	WEEK 2	WEEK 3
ANN	ANN	ANN
BILL	BILL	BILL
CARL	CARL	CARL
DEENA	FRANK	HANNAH
ED	LEENY	IRA

- **CYCLICAL UNEMPLOYMENT** 
  - UNEMPLOYMENT RATE DEVIATES FROM THE NATURAL RATE DUE TO POOR LDP GROWTH

LABOR ISSUES

- MINIMUM WAGE - PRICE FLOOR ON WAGES
  - CREATES UNEMPLOYMENT IN LOW COST OF LIVING AREAS + WITH TEENAGERS
- UNIONS - WORKER ASSOCIATION FOR NEGOTIATION WITH FIRMS

  COLLECTIVE BARGAINING - NEGOTIATION BETWEEN FIRM'S REPR. AND SELECTED WORKER'S REPR.

  STRIKE - ORGANIZED WITHDRAWL BY WORKERS

  LOCKOUT - FIRM WON'T LET WORKERS IN

INSIDERS v. OUTSIDERS

EFFICIENCY WAGES - ABOVE LOCAL EQUILIBRIUM WAGES TO INCREASE PRODUCTIVITY

- HEALTHY
- REDUCE TURNOVER
- INCREASE QUALITY + EFFORT OF WORKERS
  (REDUCE "SHIRKING")

CH. 16 MONEY

① UNIT OF ACCOUNT - A RELATIVE MEASUREMENT FOR PRICES + DEBTS

② STORE OF VALUE - TRANSFER PURCHASING POWER INTO THE FUTURE

③ MEDIUM OF EXCHANGE - UNIVERSALLY ACCEPTED AS PAYMENT

LIQUIDITY - EASE OF BEING A MEDIUM OF EXCHANGE

TYPES OF MONEY

COMMODITY MONEY - MONEY WITH INTRINSIC VALUE (GOLD, WHEAT CIGARETTES)

FIAT MONEY - MONEY BY GOV'T DECREE

- CURRENCY - PAPER BILLS + CHANGE
- DEMAND DEPOSITS - CHECKING ACCOUNTS / TRAVELER'S CHECKS
- SAVINGS ACCTS, MONEY MARKET CD'S ~~<$~~ 1 DAY OR LESS
- LONGER TERM CD'S

WHO CONTROLS THE AMOUNT OF MONEY?

- FEDERAL RESERVE - CENTRAL BANK OF U.S.
- REGULATE QUANTITY OF MONEY

MONETARY POLICY

① SET INTEREST RATES

DISCOUNT RATE - RATE

THE FED HAS FOR LENDING TO BANKS

FED FUNDS RATE - RATE THAT BANKS LEND TO ONE ANOTHER

2) BUY + SELL BONDS TO INCREASE CURRENCY (OR DECREASE)

OPEN MARKET OPERATIONS

- REGULATE BANKING INDUSTRY
  - LENDER OF LAST RESORT
  - FDIC INSURANCE
  - SET RESERVE RATIO

% OF DEPOSITS THE BANK MUST KEEP IN CASH

RESERVES - DEPOSITS NOT LOANED OUT

FRACTIONAL RESERVE BANKING - ONLY A SMALL % OF DEPOSITS ARE HELD IN RESERVES

- **RESERVE RATIO** - GIVEN % TO BE HELD AS CASH IN BANK

EXAMPLE = 10%

DEPOSITS	LOANS	RESERVES
$100	$90	$10
$90	$81	$9
$81	$72.90	$8.10
...	...	...
+	+	+
$1000	$900	$100

CREATION OF MONEY

$$\text{MONEY MULTIPLIER} = \frac{1}{\text{RESERVE RATIO}}$$

$$\text{MONEY CREATED} = \$100 \times \frac{1}{.10} = \$1000$$

RESERVES (CREATED) = $100

MORE MONEY? LOWER RESERVE RATIO!

10% → 5%

$$\text{MONEY CREATED} = \$100 \times \frac{1}{.05} = \$2000$$

CH. 17 MONEY + INFLATION

HYPERINFLATION

100% ANNUAL INCREASE IN PRICES (OR MORE)

- ZIMBABWE
- GERMANY

SEIGNORAGE

MILD INFLATION

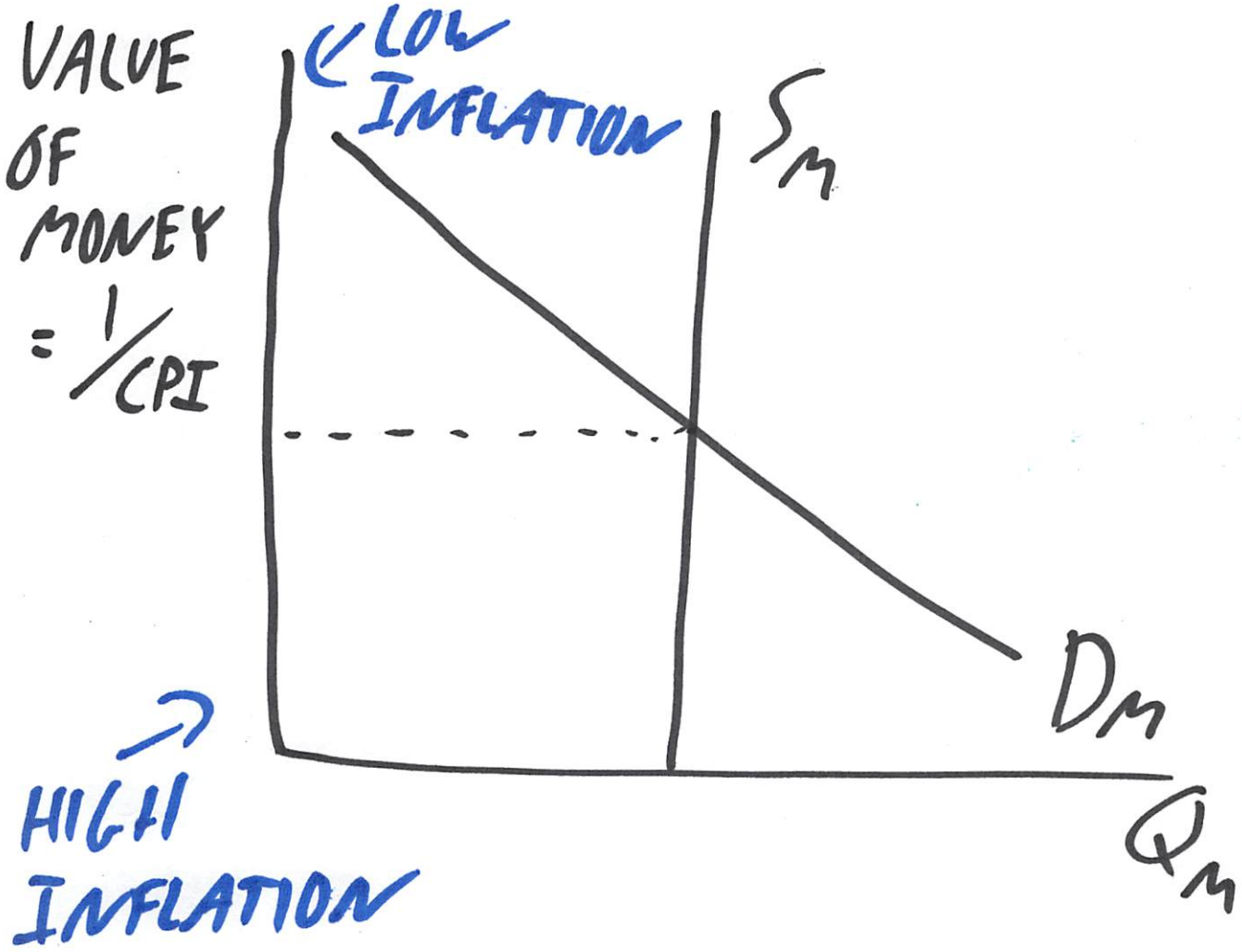
- 1% - 2.5%
- 2.5% - 4%
- MORE THAN 4%

DEFLATION

WHEN PRICES FALL

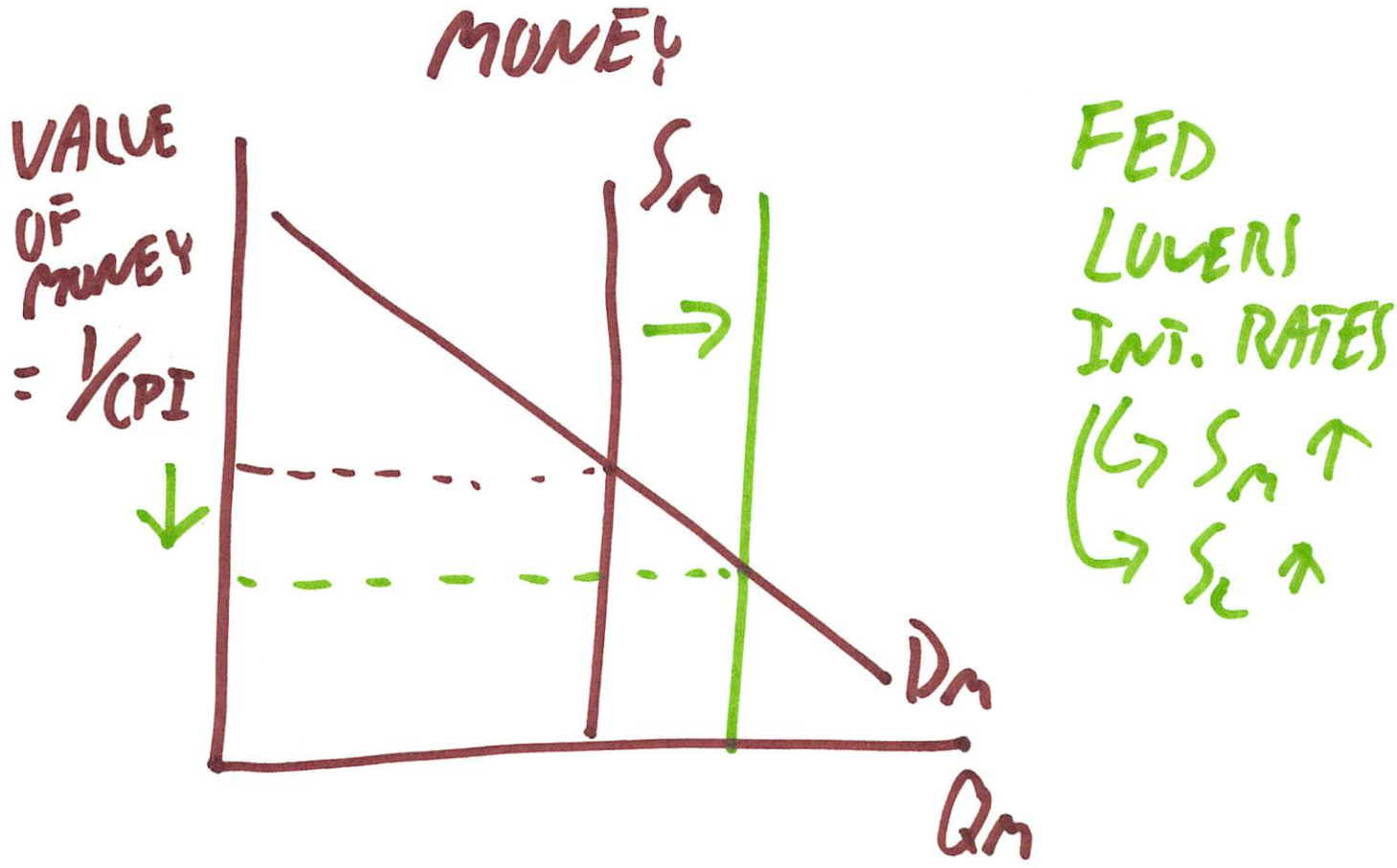
AT THE FED

- CONTROLS SUPPLY OF MONEY

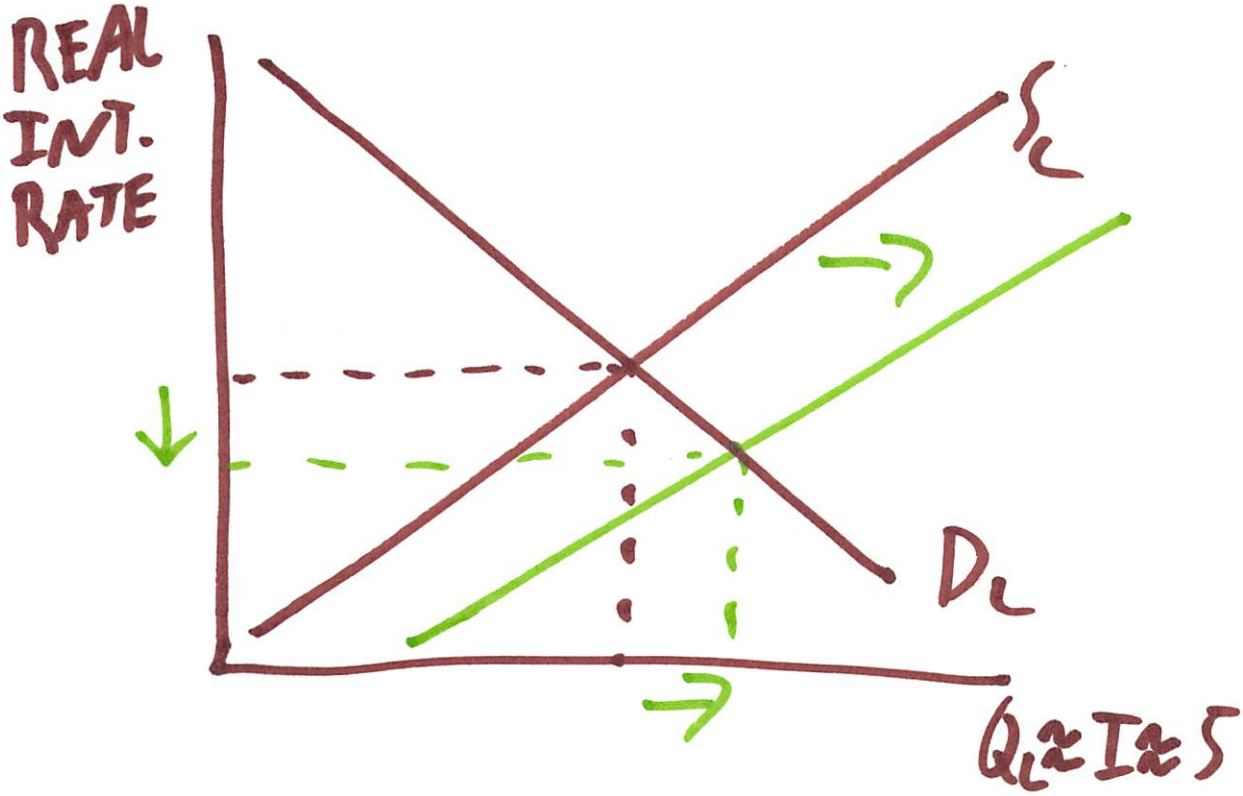


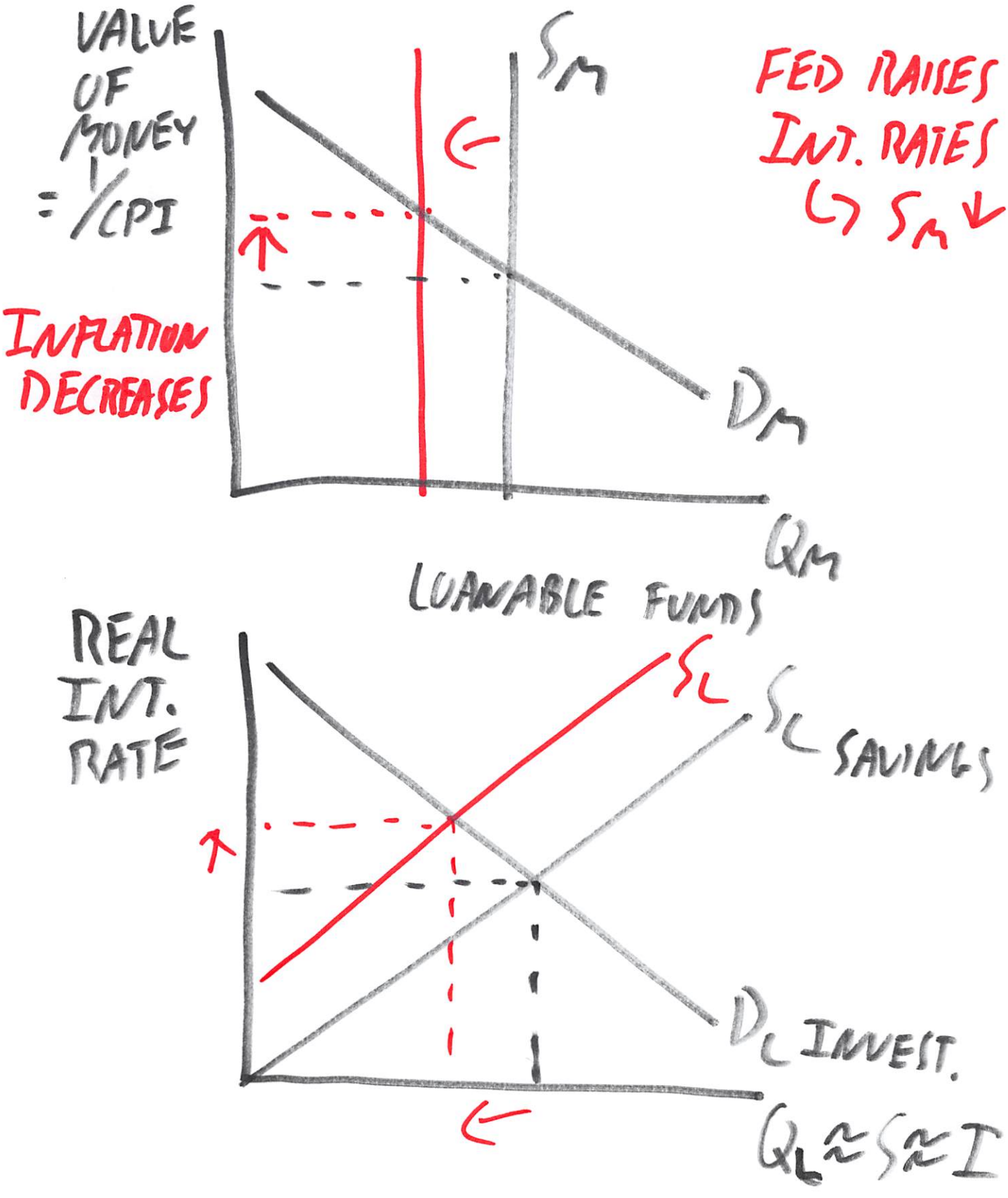
DEMAND FOR MONEY

- DETERMINED BY HOUSEHOLDS + BUSINESSES (PRIVATE SECTOR)
  - INTEREST RATE ↑ → D_M ↓
  - INCOME (GDP) ↑ → D_M ↑
  - CREDIT POTENTIAL ↑ → D_M ↓



FED LOWERS INT. RATES
(↳ S_m ↑
↳ S_L ↑




VALUE OF MONEY = 1/CPI
S_M
D_M
Q_M
FED RAISES INT. RATES
↳ S_M ↓
INFLATION DECREASES
LOANABLE FUNDS
REAL INT. RATE
S_L
S_L SAVINGS
D_L INVEST.
$Q_L \approx S \approx I$

(H.17) VELOCITY OF MONEY

- RATE AT WHICH MONEY CHANGES HANDS

$$V = \frac{(\text{PRICE LEVEL} \times \text{REAL GDP})}{\text{MONEY SUPPLY}}$$

$$V = \frac{P \times Y}{M}$$

- USUALLY $\bar{V}$ IS STABLE
  - ↳ BAR = JAIL = STUCK

$$M \times \bar{V} = P \times Y \rightarrow \text{QUANTITY EQUATION}$$

↑ ↕ ↓

$$Y = F(K, L, H, N) \times A$$

IF MONEY ↑ ⇒ $\bar{K}, \bar{L}, \bar{H}, \bar{N}, \bar{A}$

IF M↑ ⇒ P↑ (MONEY NEUTRALITY)

2008-2009 V HAS DECREASED TO LOWEST LEVEL IN 18 YEARS

⇒ $M \times V = P \times Y$

↑ ↓ ↔ ↕

Figure 4-2

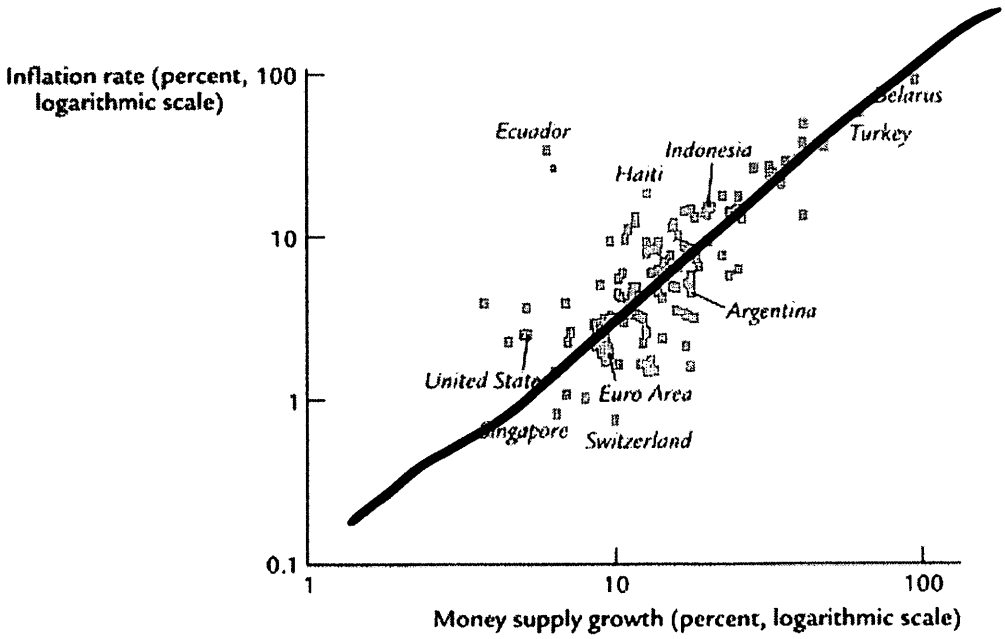


Figure 4.2 International Data on Inflation and Money Growth In this scatterplot, each point represents a country. The horizontal axis shows the average growth in the money supply (as measured by currency plus demand deposits) during the period 1996 to 2004, and the vertical axis shows the average rate of inflation (as measured by the CPI). Once again, the positive correlation is evidence for the quantity theory's prediction that high money growth leads to high inflation. *Source:* International Financial Statistics.

Figure 4-4

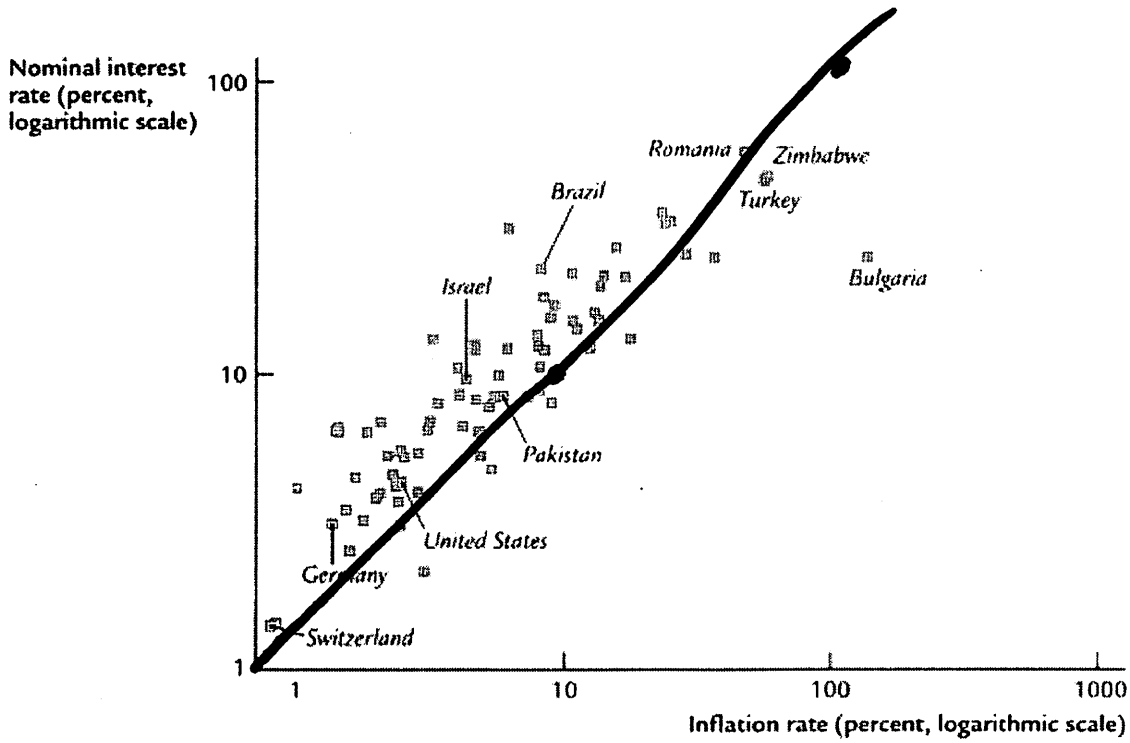
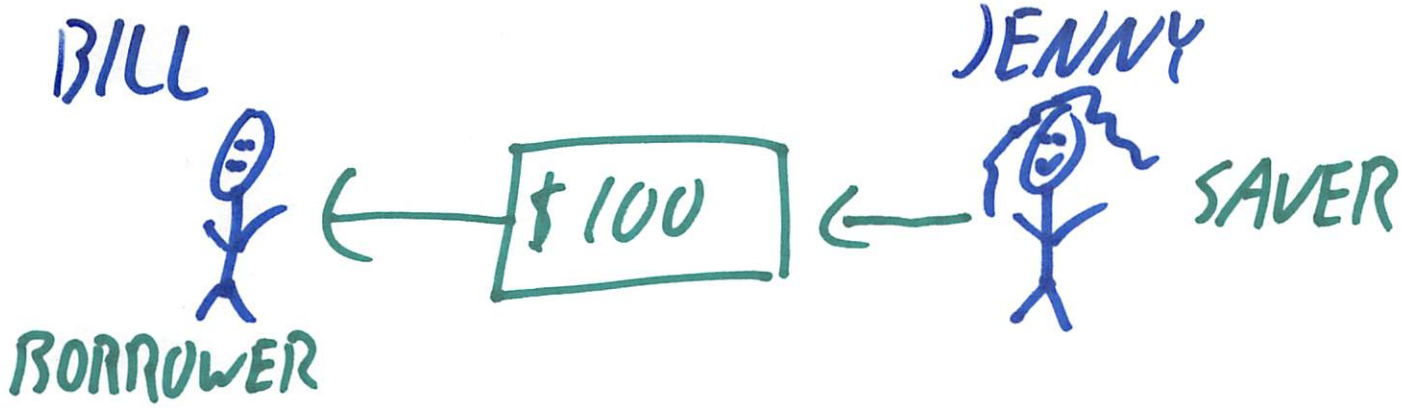


Figure 4.4 Inflation and Nominal Interest Rates Across Countries This scatterplot shows the average nominal interest rate on short-term Treasury bills and the average inflation rate in 77 countries during the period 1996 to 2004. The positive correlation between the inflation rate and the nominal interest rate is evidence for the Fisher effect. *Source:* International Financial Statistics.

CH. 17 COSTS OF INFLATION

UNEXPECTED INFLATION

- BAD LENDING, BAD BORROWING



EXPECT 5% INFLATION

NOMINAL INT. RATE 8%

REAL INT. RATE EXPECTED TO BE 3%

UH NO... INFLATION IS 10%!

- REAL INT. RATE REALLY -2%
- JENNY'S $100 ONLY WORTH $98

- SHOE LEATHER COSTS
  - COSTS OF GOING OUT OFTEN TO GET MONEY OR SPEND MONEY
- TAX ISSUES - PAY TAXES ON GAINS

  INFLATION = 6% → $100 BOND IS WORTH $200 12 YEARS LATER

COSTS OF INFLATION

- INFLATION TAX (1% - 3%)
  ⇒ HURTS BIG SAVERS MOST
- FISHER EFFECT
  → REAL INTEREST RATE NEVER REALLY CHANGES

REAL INT. RATE =
NOMINAL INT. RATE - INFLATION

FISHER SAYS THAT'S FALSE

NOMINAL = REAL + INFLATION

UNEXPECTED INFLATION ~ 10%
SAVERS WERE GETTING 3%
NOMINAL RETURN
EXPECT 0% INFLATION → REAL 3%
FINISHED YEAR WITH -7% RETURN
BENEFITS BORROWERS, HURTS SAVERS

- MENU COSTS -
  - COSTS OF CHANGING PRICES
- SHOELEATHER COSTS
  - COST OF TRANSACTING GOODS + SERVICES ASAP
- TAXES
  - CAPITAL GAINS TAXES ARE ON NOMINAL RETURN NOT REAL RETURN
  - BUY BOND AT $100
    INFLATION = 6%
    SELL FOR $200 IN 12 YEARS

NOMINAL PROFIT = 200 - 100 = $100

PAY 15% CAPITAL GAINS TAX = $15

AFTER-TAX RETURN = $85

$$PV \times (1+r)^Y = FV$$

$$PV\,(1+.06)^{12} = 200$$

$$PV \approx 100$$

RULE OF 72

$$\text{HOW LONG UNTIL MONEY DOUBLES?} = \frac{72}{\text{INT. RATE}} = \text{\# YEARS TO DOUBLE}$$

CH. 18 REVIEW

NET EXPORTS: NX ← CURRENT ACCOUNT
= EXPORTS - IMPORTS

TRADE DEFICIT → NX IS NEGATIVE

NET CAPITAL OUTFLOWS (NCO)

- CAPITAL ACCOUNT
- PURCHASE OF FOREIGN ASSETS BY U.S. CITIZENS MINUS PURCHASE OF U.S. ASSETS BY FOREIGN CITIZENS
- FOREIGN DIRECT INVESTMENT (FDI) - BUYING A PHYSICAL ASSET (OR)
- PORTFOLIO INVESTMENT
  - STOCKS + BONDS

NCO = NX

→ YOU BUY 1 BARREL OF OIL ($50)

→ COUNTRIES MUST EITHER EXPORT GOODS + SERVICES OR ASSETS

→ TRADE DEFICITS MAY BE EITHER GOOD OR BAD

BAD: MORTGAGING FUTURE CONSUMPTION

SELLING U.S. ASSETS

GOOD: INDIVIDUALS ACTING OPTIMALLY

SLOW + STEADY GROWTH IN U.S. (OIL)

$$Y_{OUTPUT} = C + I + G + NX$$

$$Y_{INCOME} = C + S + T$$

$$Y_I = Y_O$$

$$\cancel{C} + I + G + NX = \cancel{C} + S + T$$

$$-I \quad -G$$

$$NX = (S - I) + (T - G)$$

MAKE $NX \uparrow$ $\Rightarrow$ RAISE TAXES ☹

CUT GOV'T SPENDING ☹

$\Rightarrow$ RAISE SAVINGS RATE ☺

CUT INVESTMENT ☹

CH. 18 NOMINAL EXCHANGE RATES

- PRICE OF A CURRENCY IN TERMS OF ANOTHER CURRENCY
- CHANGE CONSTANTLY 365 DAYS A YEAR
  - NEW YORK, TOKYO, LONDON
- VOLATILE COMPARED TO OTHER MACRO VARIABLES
- CURRENCY LOSES VALUE
  : DEPRECIATION

  GAINS VALUE
  : APPRECIATION

REAL EXCHANGE RATE (RER)

- RATE TO TRADE 1 COUNTRY'S GOODS FOR ANOTHER COUNTRY'S GOODS

$$RER = \frac{\text{NOMINAL EX. RATE} \times \text{PRICE GOOD}}{\text{PRICE OF GOOD IN FOR. COUNTRY}}$$

$$= \frac{\text{NOMINAL EX. RATE} \times (PI_{U.S.}}{(PI_{EU}}$$

PURCHASING POWER PARITY (PPP)

- LAW OF ONE PRICE (LOOP)

⇒ RER = 1 OR AT LEAST STABLE

$$RER \Rightarrow \frac{\text{DOMESTIC PRICE IN FOR. CURRENCY}}{\text{FOREIGN PRICE IN FOR. CURRENCY}}$$

$$RER: \frac{\text{NOMINAL EX. RATE} \times P_{US}}{P_F}$$

$$RER = \frac{\frac{.90€}{\$1} \times \$24,200}{€25,250}$$

$$RER = .86$$

PREDICTING EX. RATES

- OVER DECADES USE PPP
- TRADE DEFICITS HURT DOM. CURRENCIES
- GOV'T DEFICITS HURT DOM. CURRENCIES
- POOR GDP GROWTH HURTS DOM. CURRENCIES
- OVER MINUTES + SECONDS USE INTEREST RATE DIFFERENTIALS
- OVER DAYS, WEEKS, MONTHS USE A RANDOM WALK