

Lecture 16

Quantity Theory, Inflation and The Demand for Money

What to explore:

- ▶ **How the quantity theory of money explains inflation in long run**
- ▶ **How theory of the demand for money have evolved.**



2 contrast view:

$$MV=PY$$

Classical view: V constant,
interest rate do not affect demand for money
Aggregate spending is determined by quantity of money

Keynesian view: V is not constant
 V is determined by interest rates
Demand for money is sensitive to interest rates



I. Quantity Theory of Money (Classical)



Velocity of money

- ▶ It tells us how much money is held for a given amount of aggregate income.
- ▶ It suggest that interest rates have no effect on the demand for money.
- ▶ **Velocity of money**

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

M = money supply, total quantity of money

P×Y = total spending on goods & services or nominal GDP,

P = price level,

Y = aggregate output or income

Velocity is the average numbers of time per year (turnover) that a dollar is spent in buying total amount of goods and services produced in the economy,



Velocity of money is fairly constant in short run

▶ Velocity is determined by institutions in the economy that affects the way individual conduct transactions e.g.

-If credit card usage $\uparrow \rightarrow$ using money less often, less money required to conduct transaction $\rightarrow M \downarrow$ relative to income $\rightarrow V \uparrow$

-If it is more convenient to pay with cash, checks, debit card $\rightarrow$ money is used given same level of income $\rightarrow V \downarrow$

Fisher's view: V is fairly constant in short run as technological and institutional feature affect velocity only slowly over time



Quantity Theory of Money Demand

▶ Equation of Exchange: $M \times V = P \times Y$

▶ Quantity Theory of Money Demand

$$M = \frac{1}{V} \times PY$$

Money market equilibrium: $M = M^d$

$$M^d = k \times PY$$

Velocity is assumed to be constant.

▶ The level of transaction generated by a fixed level of nominal income (PY) determine the quantity of money that people demand (M^d).

Implication: interest rates not important to M^d

▶ Vice a versa, nominal income is determined solely by movements in the quantity of money.



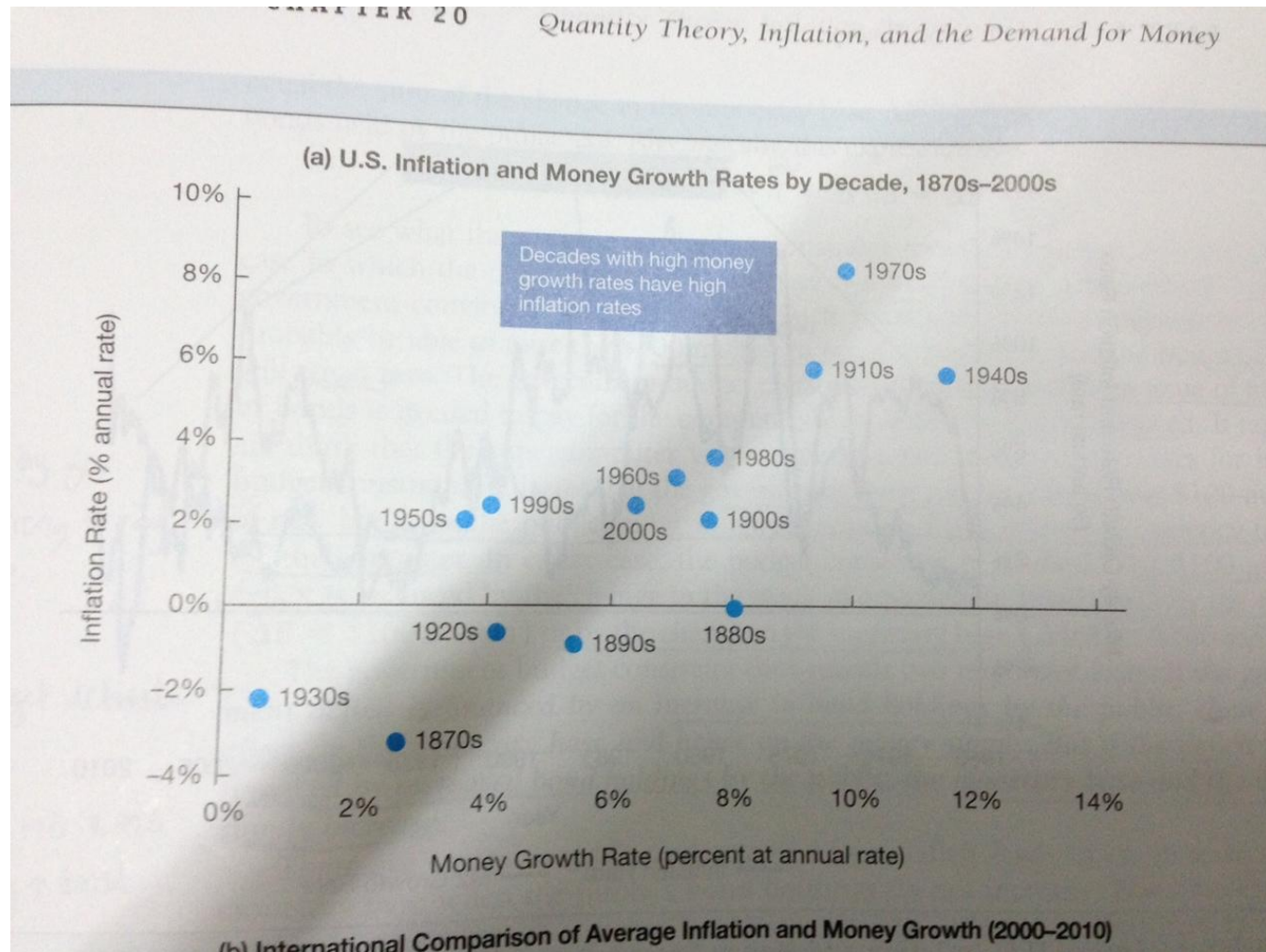
Quantity theory and the price level

- ▶ Classical economist (including Fisher) assume that output (Y) is constant in short run. (produce at full employment level, wage and price were flexible)
- ▶ Now we have V and Y constant:

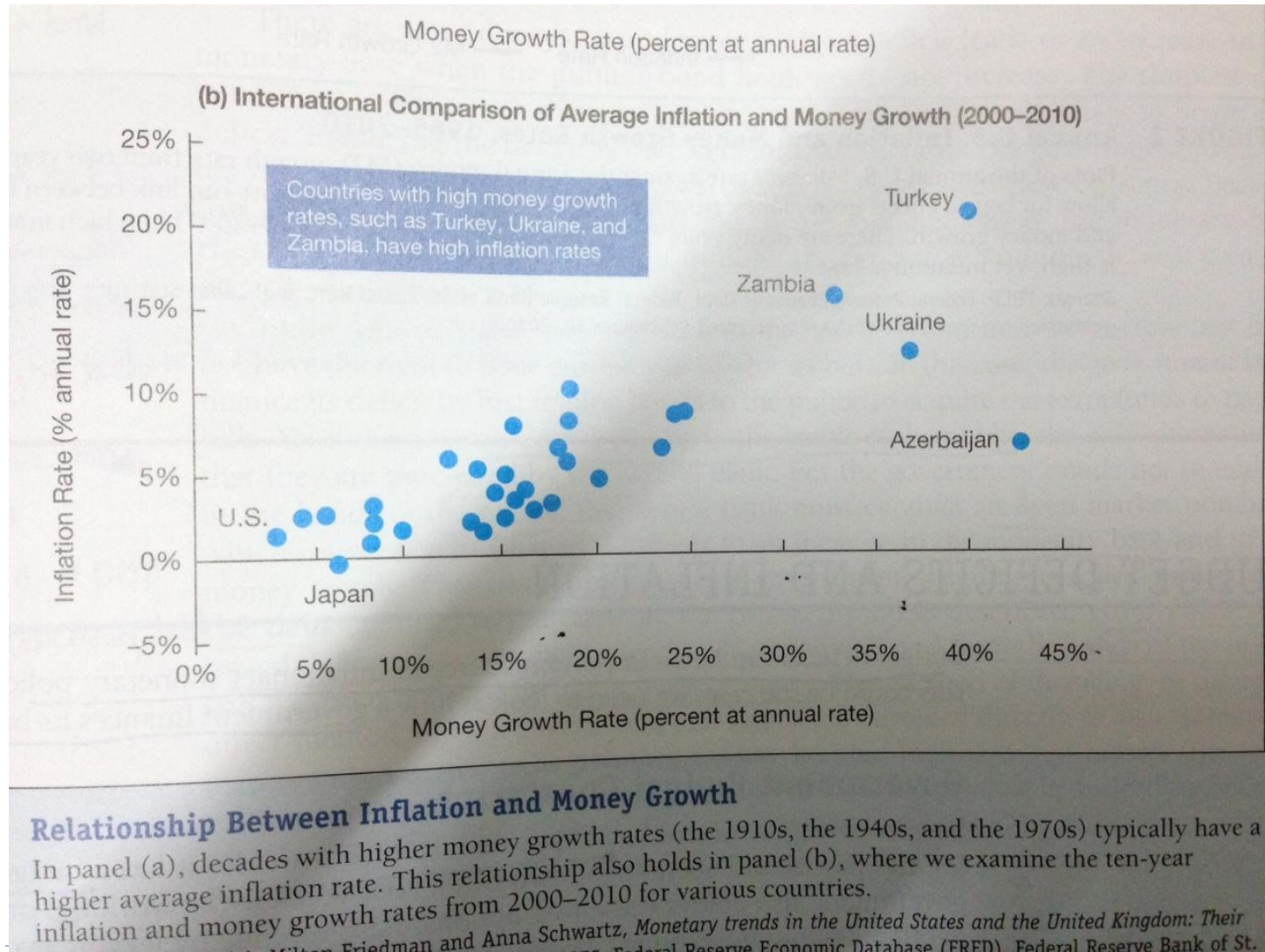
$$M = \frac{1}{V} \times PY$$

- ▶ Changes in the quantity of money lead to proportional changes in price level.
 - ▶ Inflation = %change money-%change output
 - ▶ Quantity theory of inflation states that inflation rate equals growth rate of money supply minus growth rate of aggregate output.
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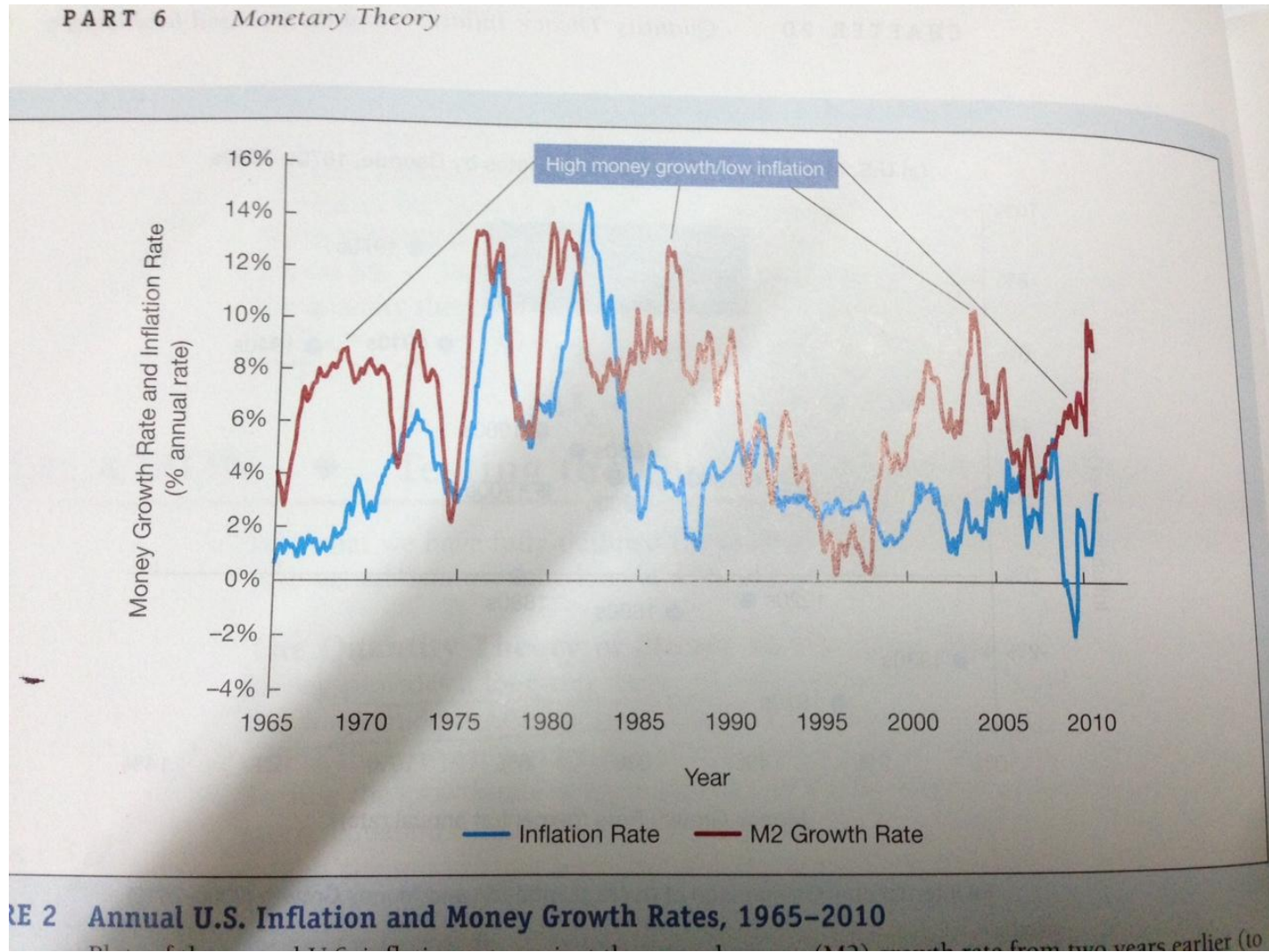
Quantity theory of money is a good theory of inflation in long run



Quantity theory of money is a good theory of inflation in long run



Quantity theory of money is a good theory of inflation in long run



II. Keynesian Theories of money demand



Keynes's Liquidity Preference Theory

- ▶ Keynes viewed that velocity was not constant and develop money demand that emphasize the importance of interest rates.

- ▶ **3 Motives behind the demand for money**

1. Transactions motive—(+) related to Y
2. Precautionary motive—(+) related to Y
3. Speculative motive
 - A. (+) related to W and Y
 - B. negatively related to i

Medium of exchange

Store of value

- ▶ **Liquidity Preference function**

$$\frac{M^d}{P} = f(\underline{i}, \overset{+}{Y})$$

i = nominal interest rates
 Y = real income

Demand for real money balance

Keynes's Liquidity Preference Theory

Implication: Velocity not constant

$$\frac{P}{M^d} = \frac{1}{f(i, Y)}$$

Multiply both sides by Y and substitute in $M = M^d$

$$V = \frac{PY}{M} = \frac{Y}{f(i, Y)}$$

1. $i \uparrow$, $f(i, Y) \downarrow$, $V \uparrow$
2. Change in expectations of future i , change $f(i, Y)$ and V changes

(because interest rate have substantial fluctuation, velocity fluctuate as well)



III. Portfolio Theories of money demand



Portfolio theories of money demand

- ▶ People decide how much asset such as money they want to hold as part of their portfolio of assets

- ▶ Theories of portfolio choices:

Asset Demand = $f(\text{wealth}(+), \text{expected relative return}(+), \text{relative liquidity}(+), \text{relative risk}(-))$

- ▶ Keynesian liquidity preference:

Demand for real money balance = $f(\text{income}(+), \text{nominal interest rates}(-), \text{inflation risk}(-), \text{risk and liquidity of other asset}(-))$

