The Behavior of Interest Rates
Money and Banking

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Drop the perfect substitute assumption.
Preference por liquidity and the market for money

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- Liquidity preference framework (Keynes)
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- Suppose people only hold bonds and money:

\[ B^d + M^d = B^s + M^s \]

That is, the bonds market is in equilibrium, the money market is in equilibrium.

Money earns no return \( R_{EM} = 0 \); bonds earn \( R_{EB} = i \).

Opportunity cost of holding money!

This is Keynes' extreme case where money = M1 but it's useful nevertheless since the rate of return on more liquid assets is always smaller than that earned by less liquid assets.
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\text{total wealth} &= \text{supply of assets}
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- Or \( B^s - B^d = M^d - M^s \). That is, the bonds market is in equilibrium \( \leftrightarrow \) the money market is in equilibrium.
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Suppose that the money supply is fixed by the monetary authority. (i.e. $M^s$ is a vertical line).
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- Thus, equilibrium is entirely determined by money demand, which depends negatively on its opportunity cost.

![Diagram showing the money market with supply ($M^s$) and demand ($M^d$) curves. The equilibrium is marked at $M^E$.](image-url)
Preference por liquidity and the market for money

- What shifts the demand curve in the market for money?

- Income: Higher income results in higher wealth and the need to store value rises. Higher income leads to more consumption, investment, etc., more transactions.

- Price level: Because we care about purchasing power, we can use the following relationship: $M_P = \text{purchasing power}$. So if we need more money to prevent purchasing power from falling.
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  \[ M \cdot P = \text{purchasing power} \]
  so that if \( P \) we need more money to prevent purchasing power from falling.
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so that if $\text{P}$ rises, $M$ needs to increase to prevent purchasing power from falling.
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$$\frac{M}{P} = \text{purchasing power}$$

so that if $\uparrow P$ we need more money to prevent purchasing power from falling.
What shifts the supply curve in the market for money?
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What shifts the supply curve in the market for money?
...the Fed does

Does a higher level of money supply lower the cost of investment and foster economic growth?
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- Does a higher level of money supply lower the cost of investment and foster economic growth?
The "all else equal" in this case is unattainable. Consider Friedman’s criticism:

- There is also the income effect: at first, lower interest rates tend to boost economic activity but as this happens, agents will demand more bonds and more money and interest rates will go up again though we can’t tell how much.

- Note also the price level effect: The income effect may partially offset the reduction in interest rates, which in turn means that the monetary expansion outweights the real expansion driving up prices; thus demand for money will rise further.

- Inflation effect: while prices are adjusting, agents will expect prices to rise in the future, that is, they will predict inflation which in turn drives up interest rates.

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(a) Liquidity effect larger than other effects

(b) Liquidity effect smaller than other effects and slow adjustment of expected inflation

(c) Liquidity effect smaller than expected-inflation effect and fast adjustment of expected inflation