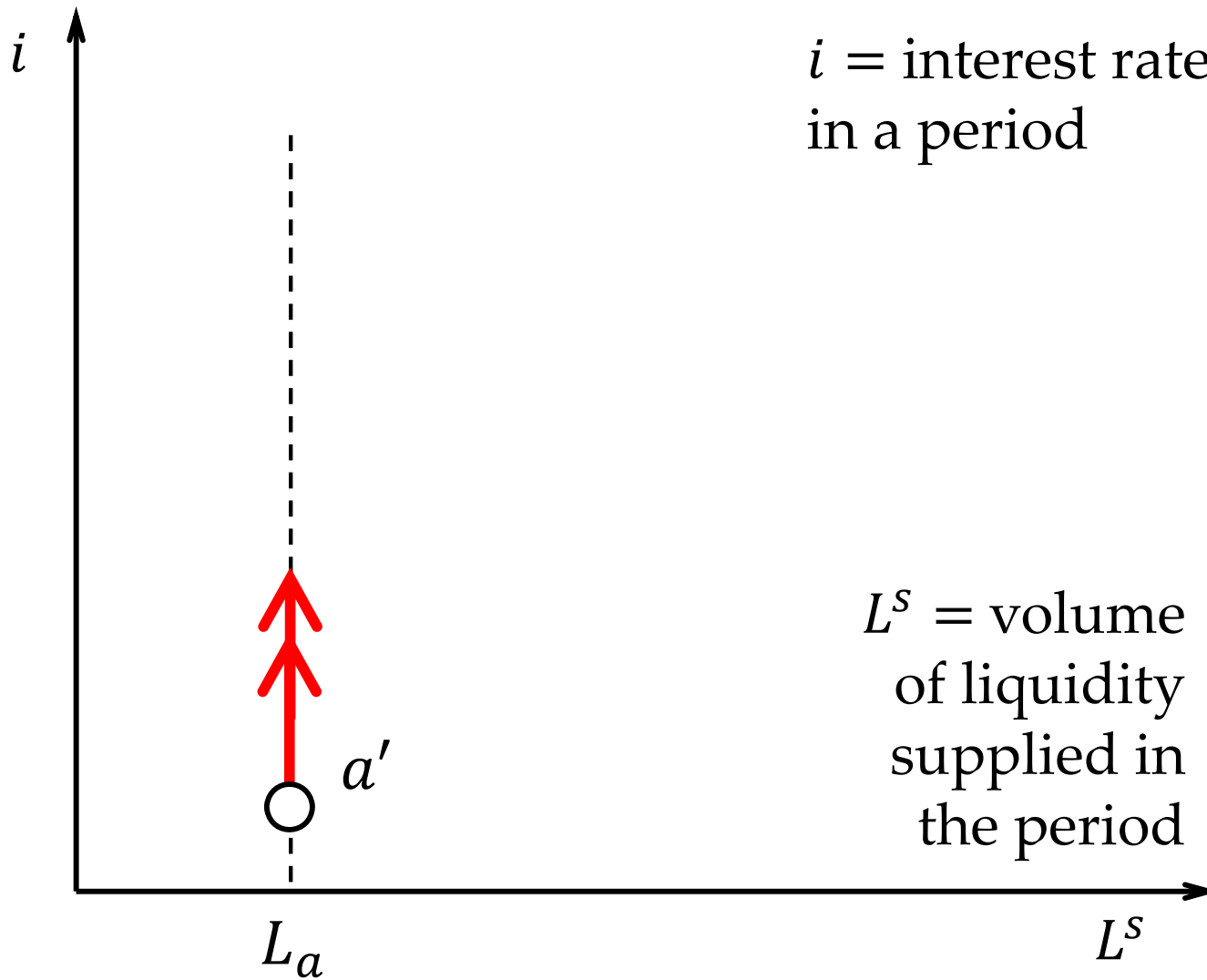
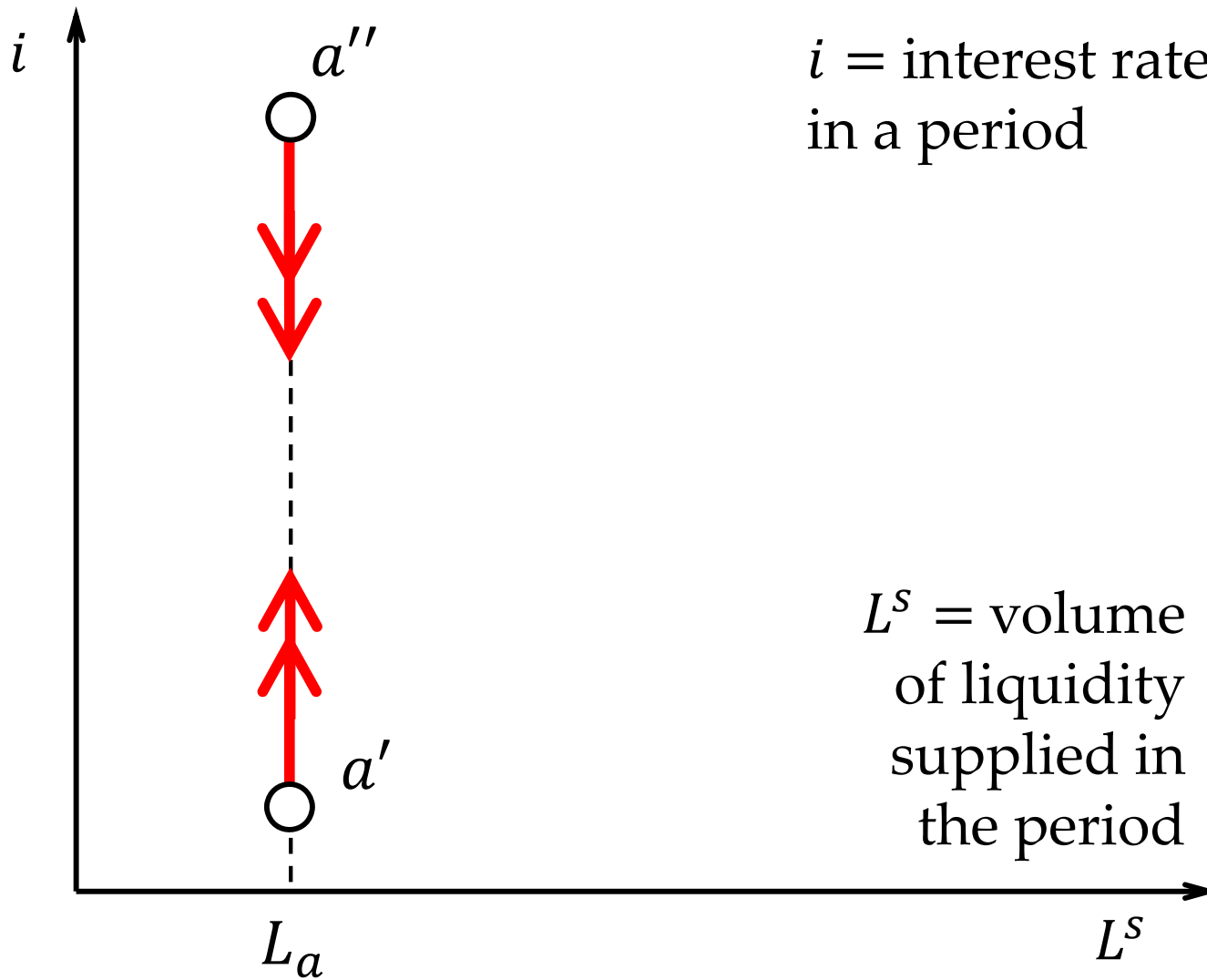
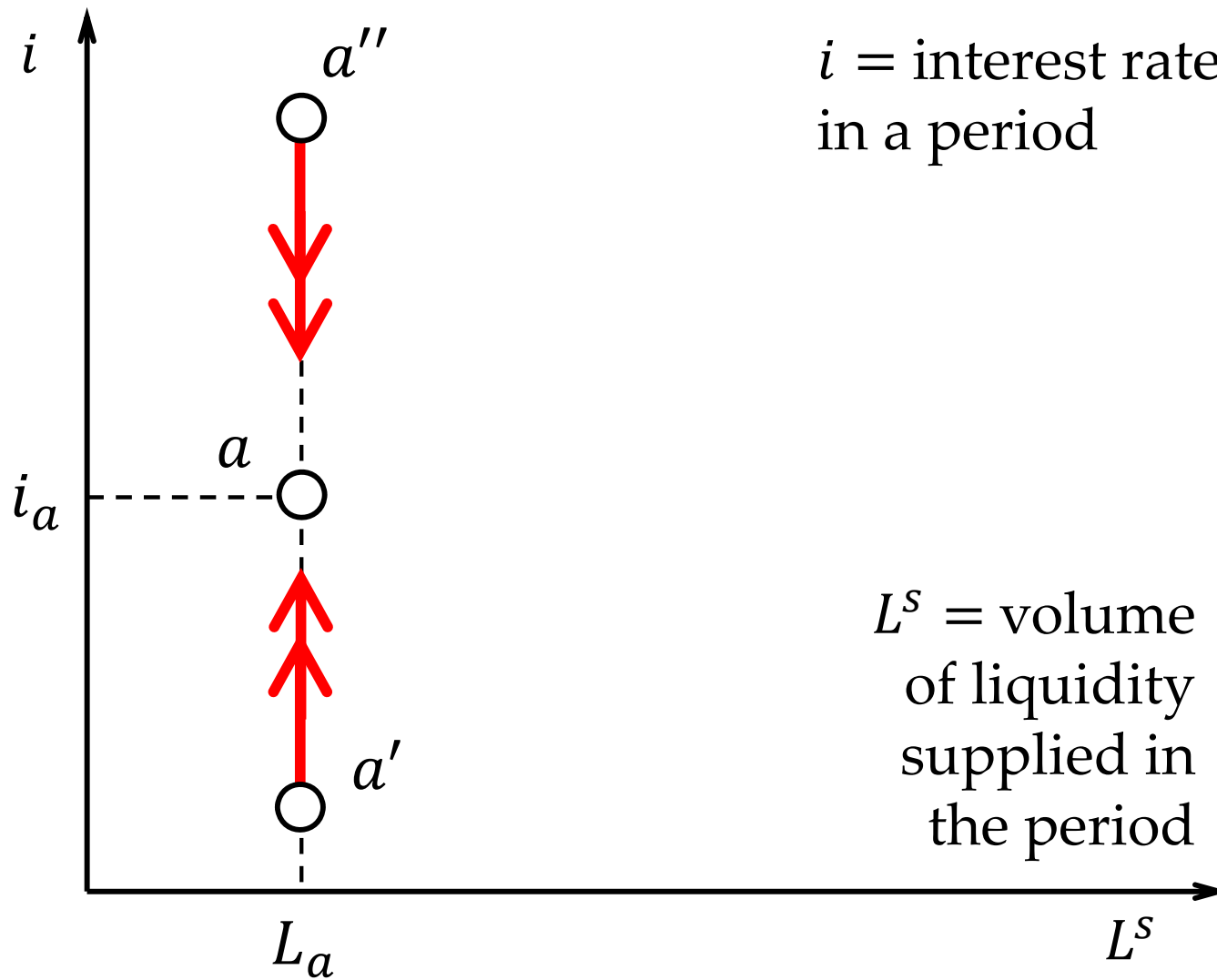


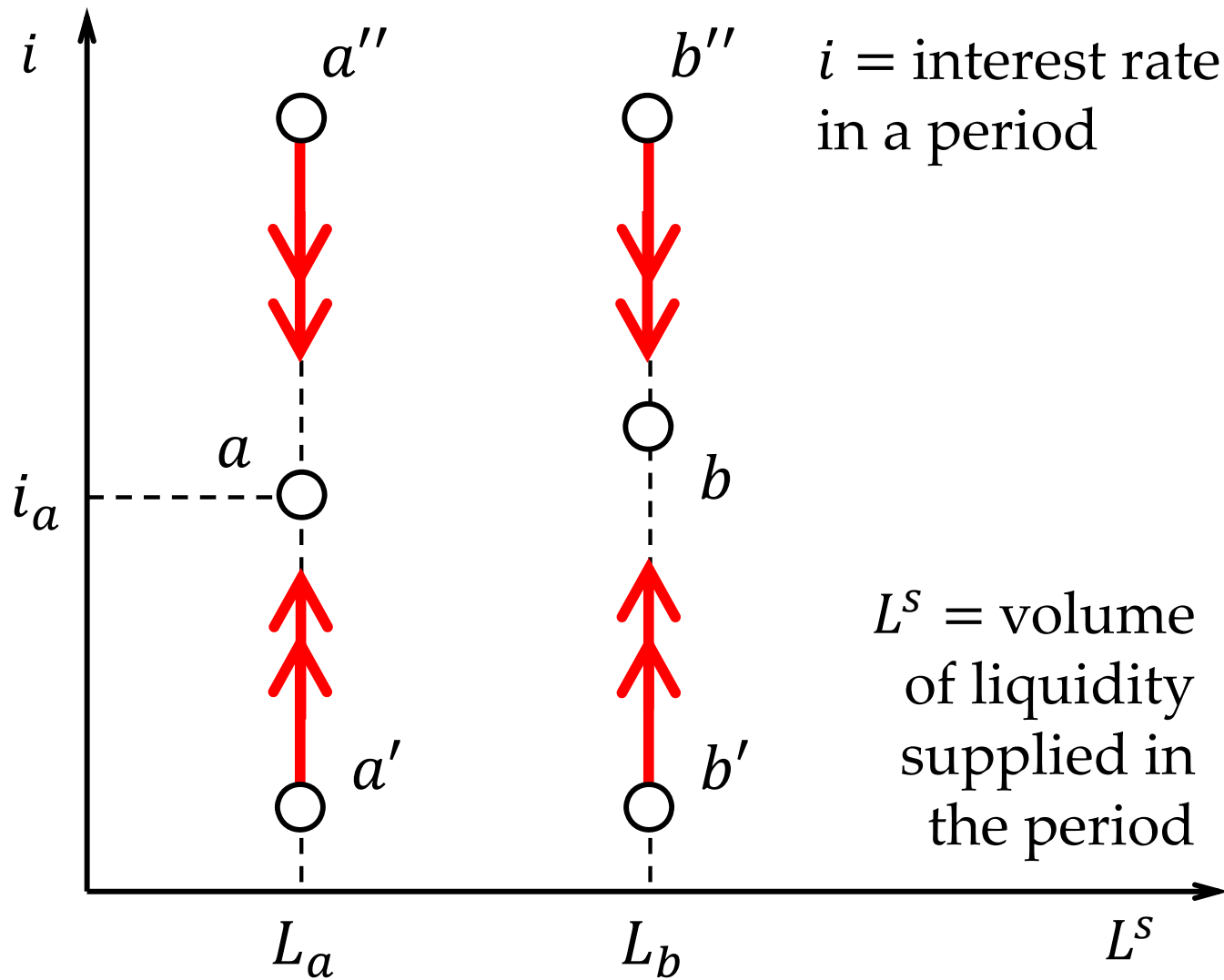
1. A liquidity market model

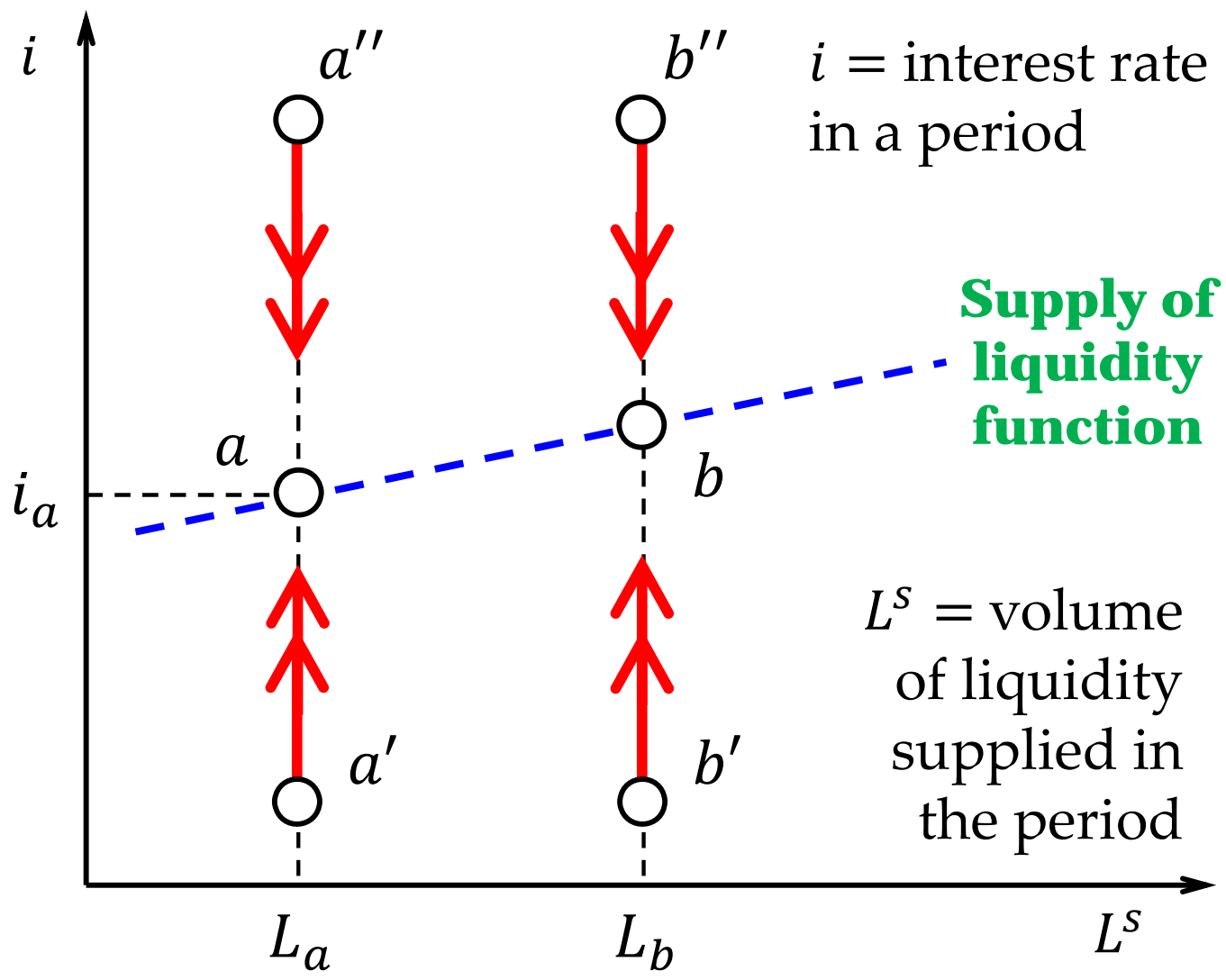
- Supply of liquidity: direct / indirect
- Supply of liquidity function
- Demand for liquidity: direct / indirect
- Demand for liquidity function
- Market equilibrium
- Comparative statics

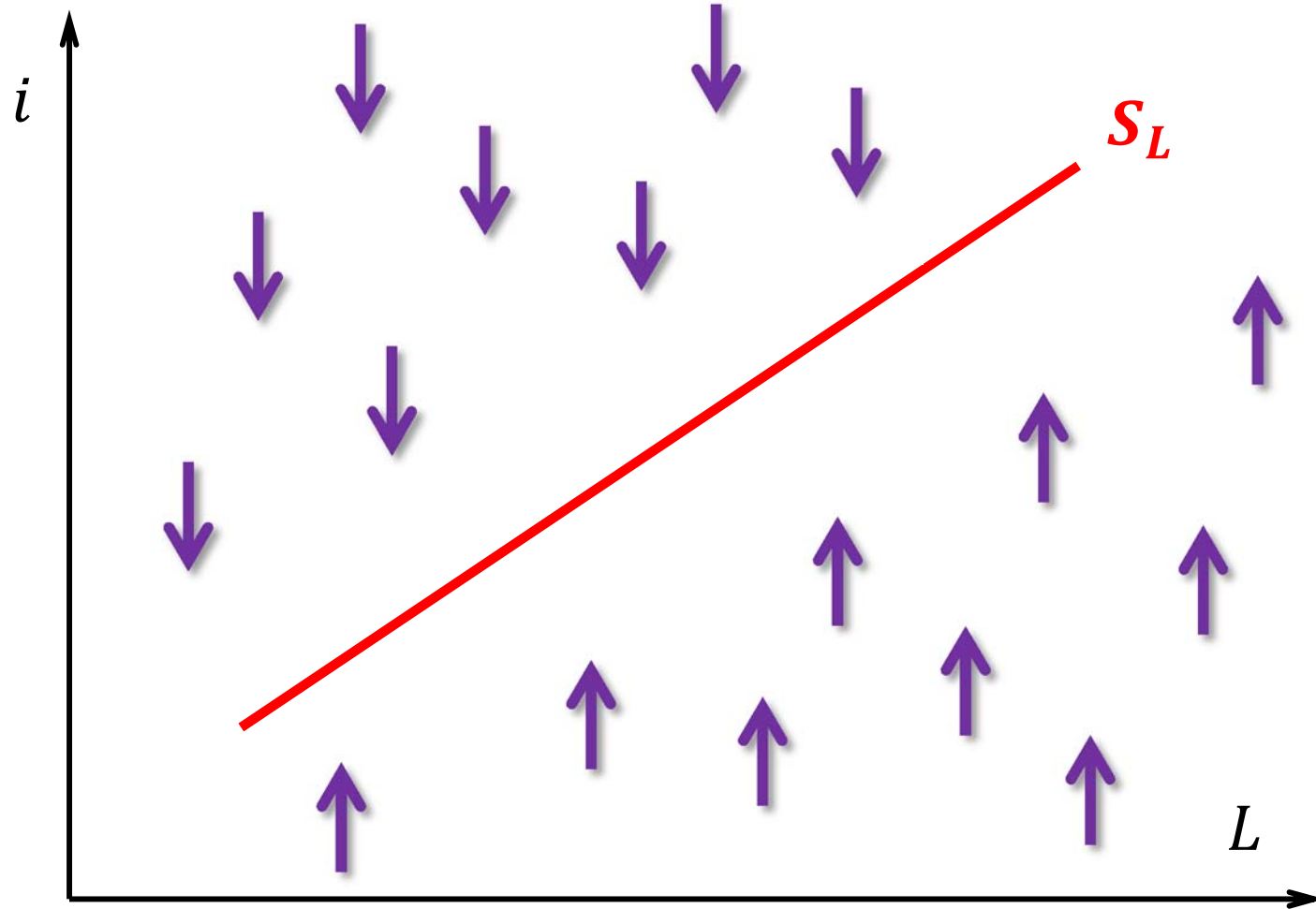


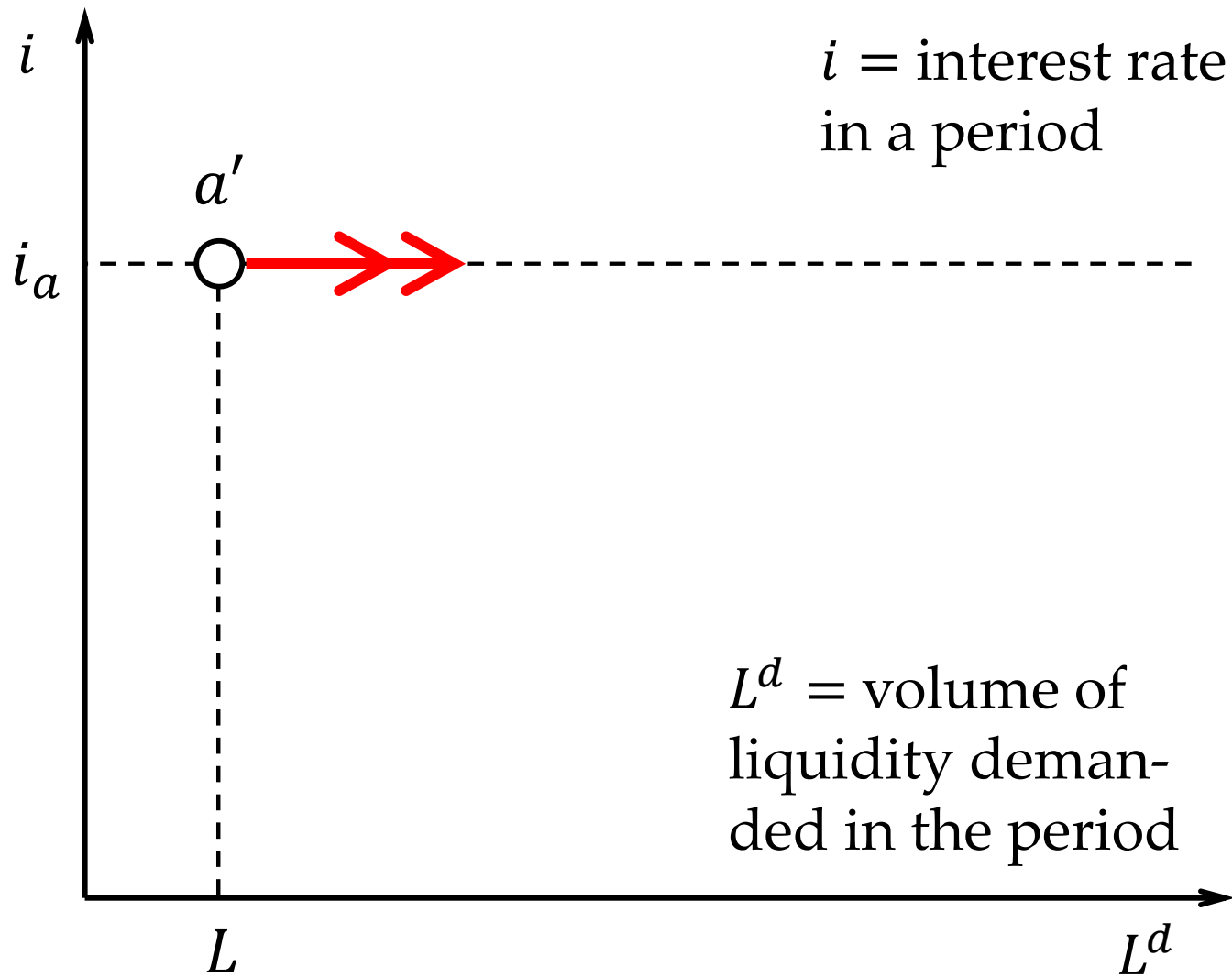


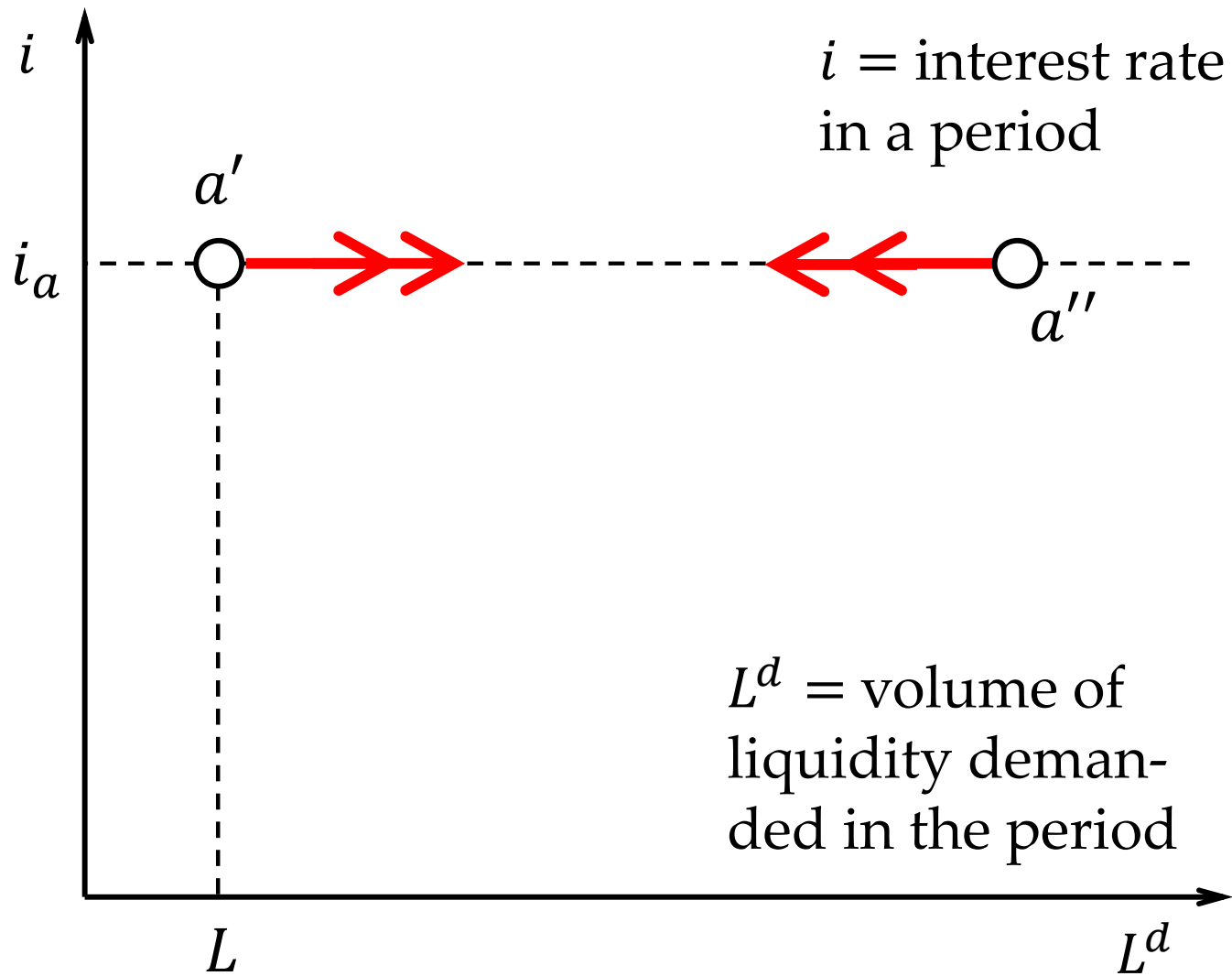


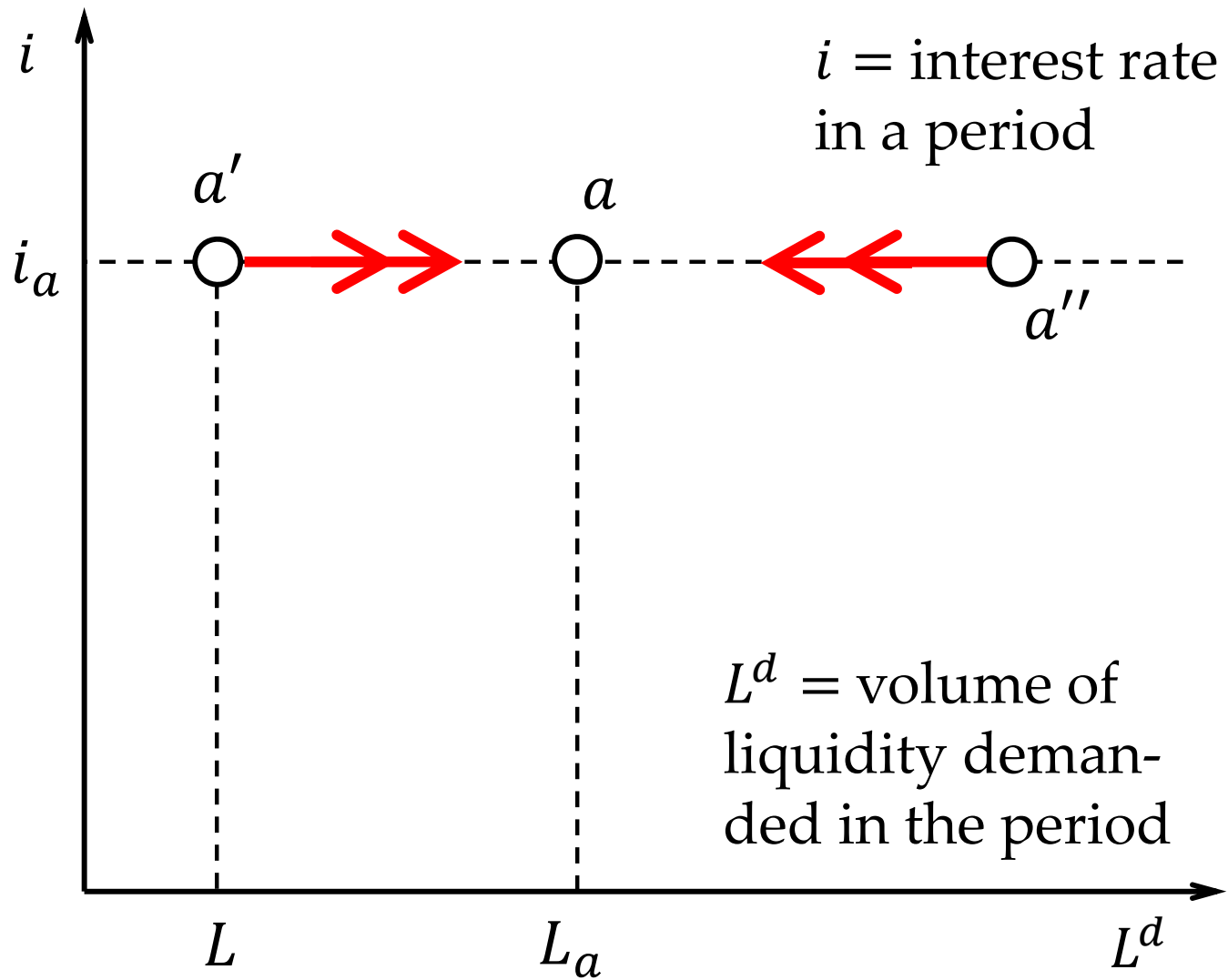


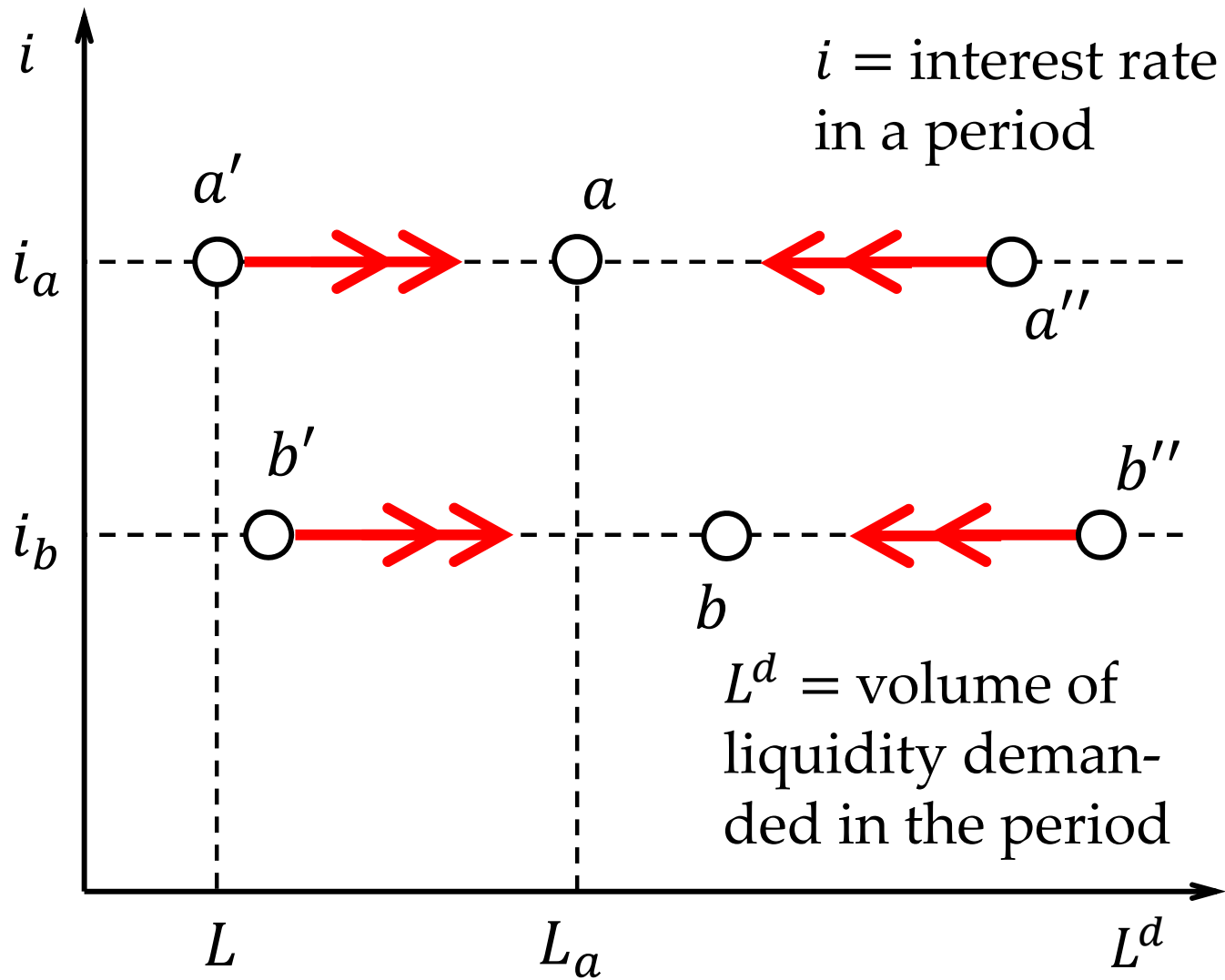


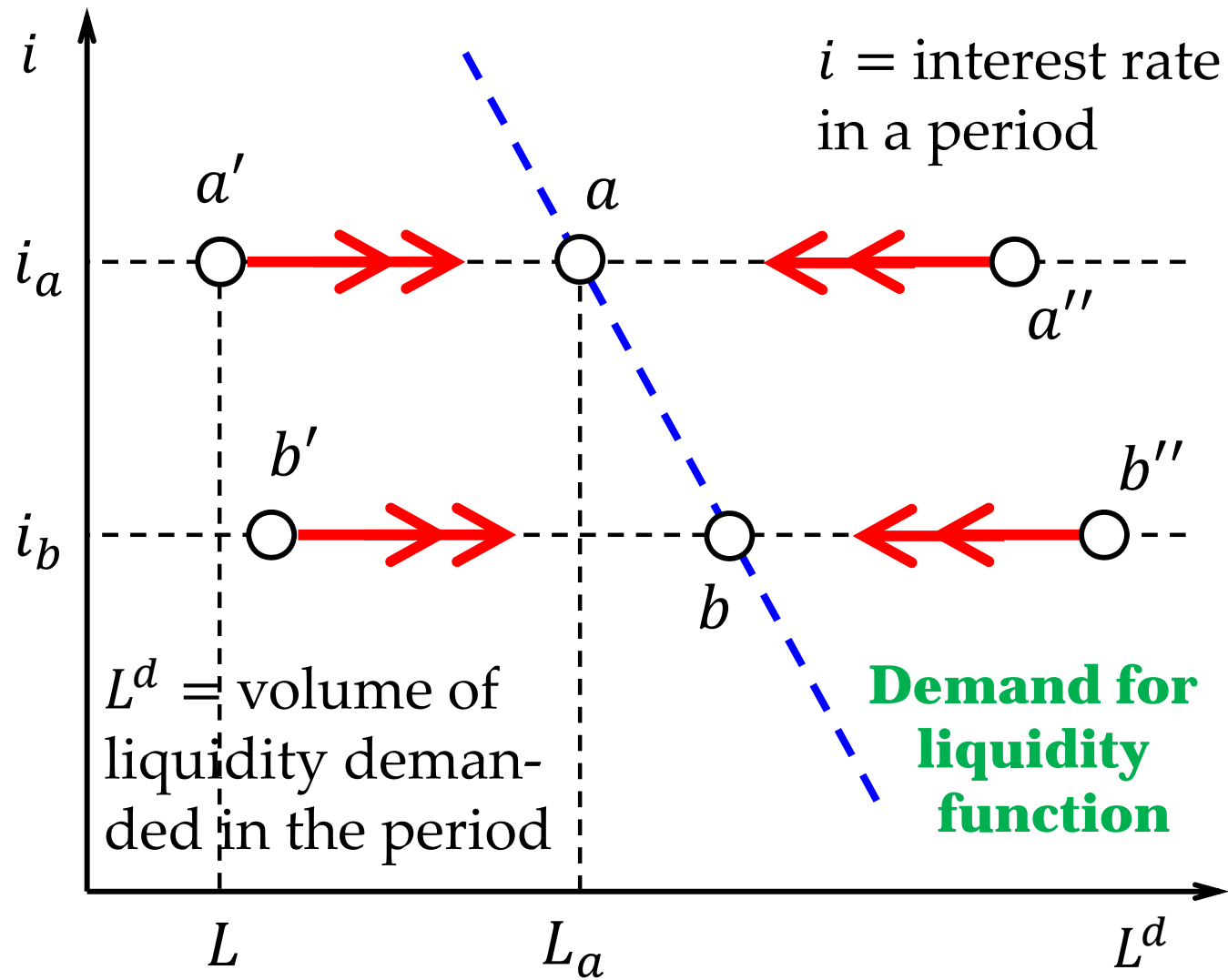


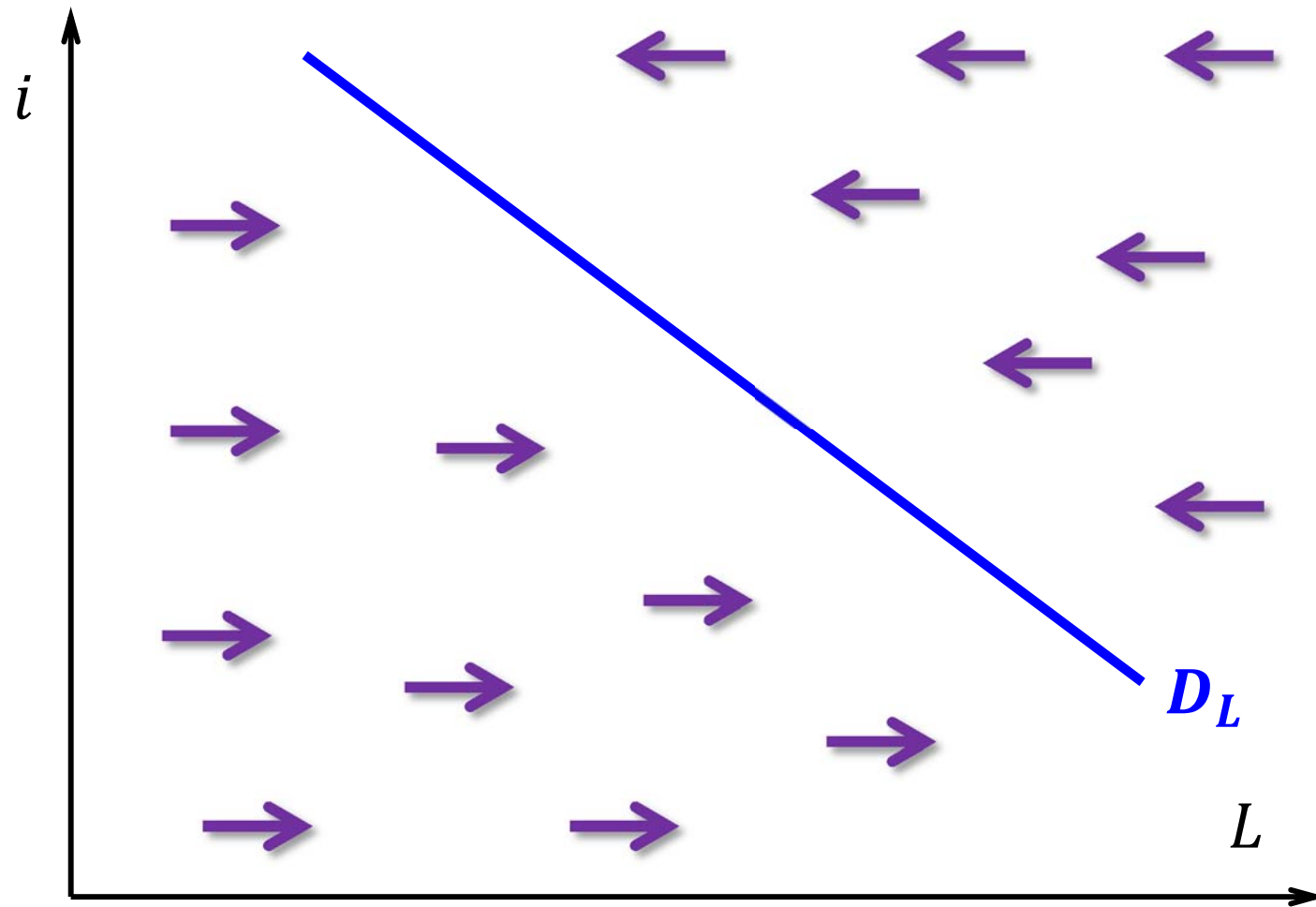


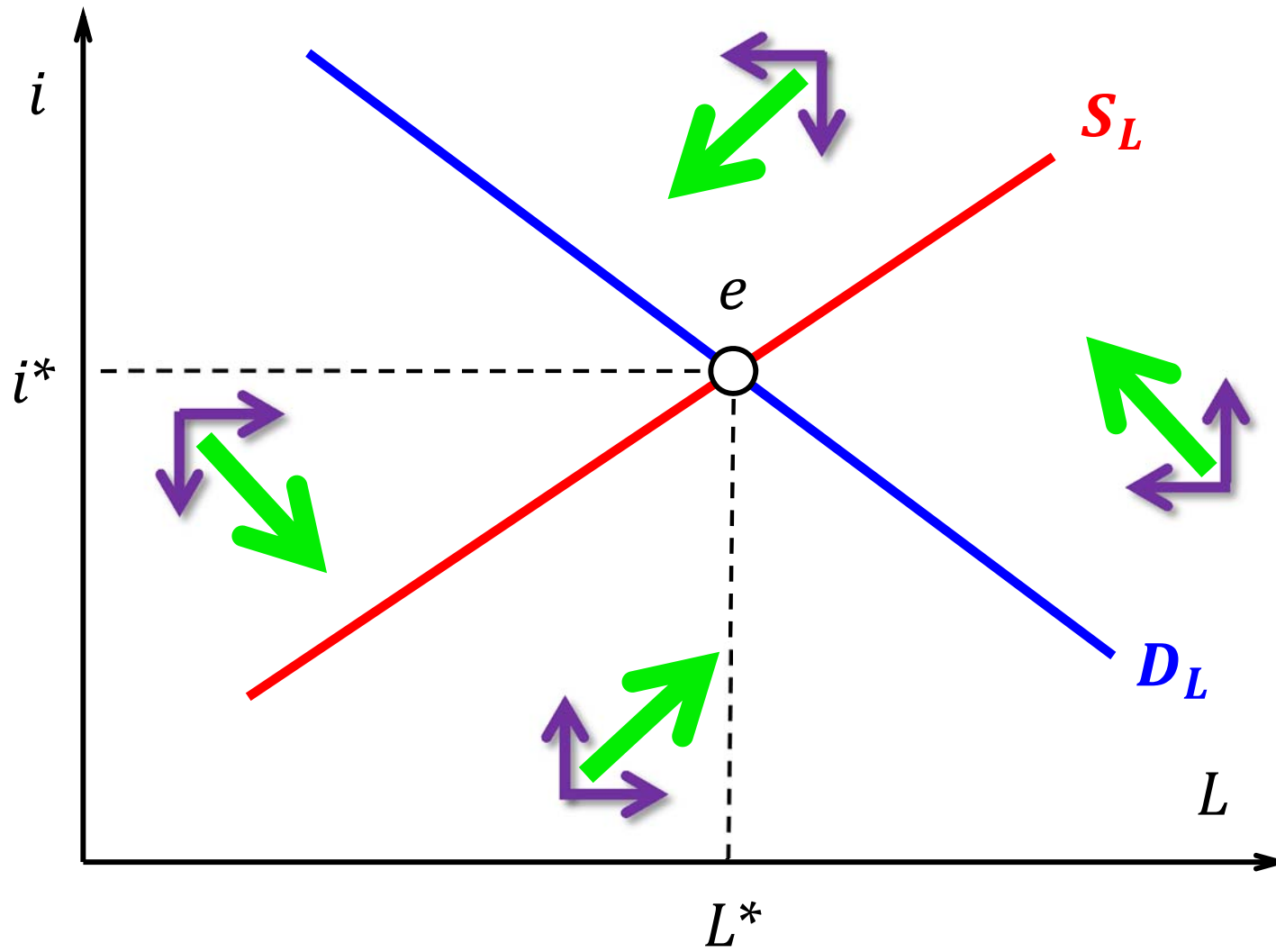


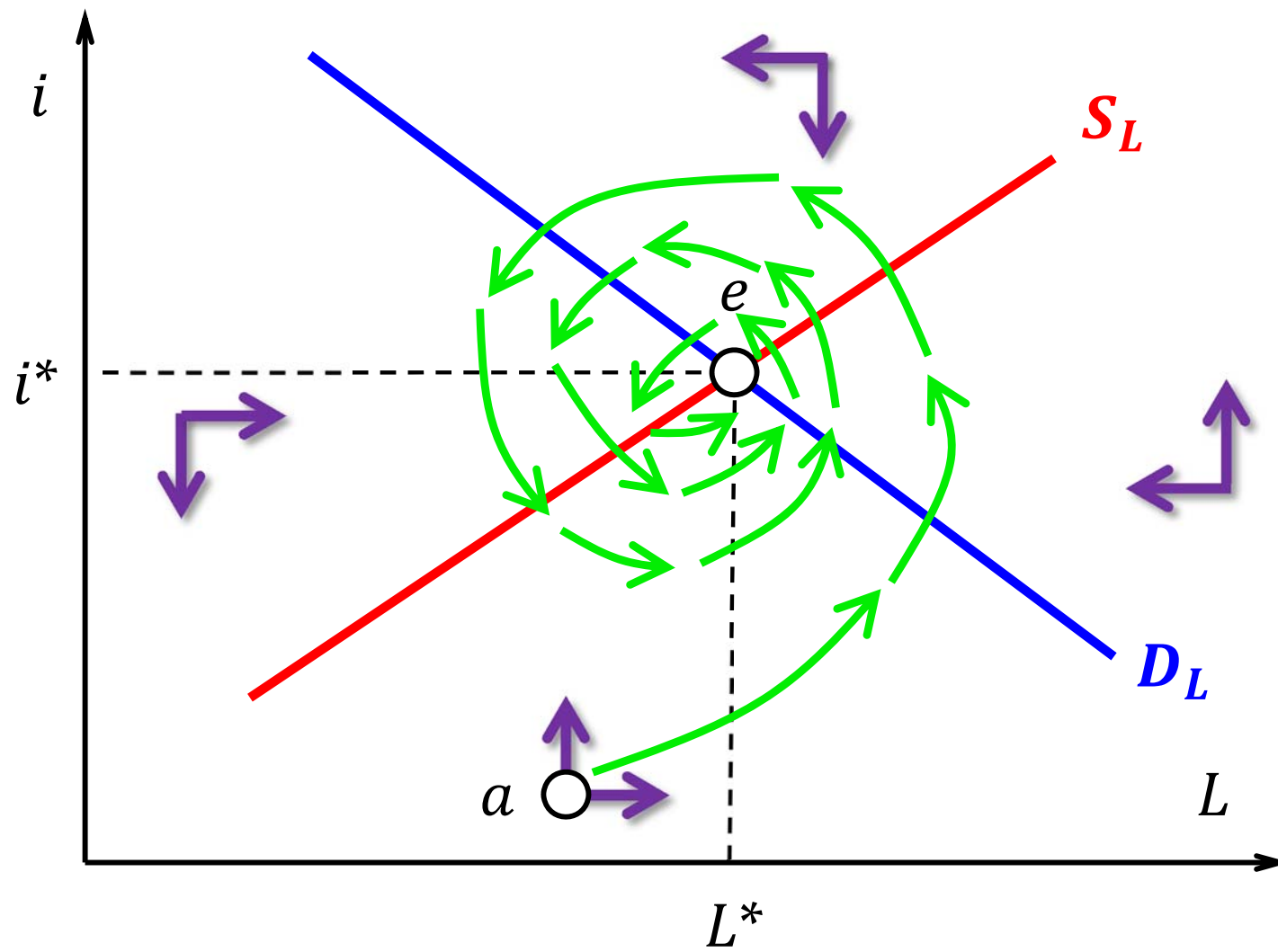




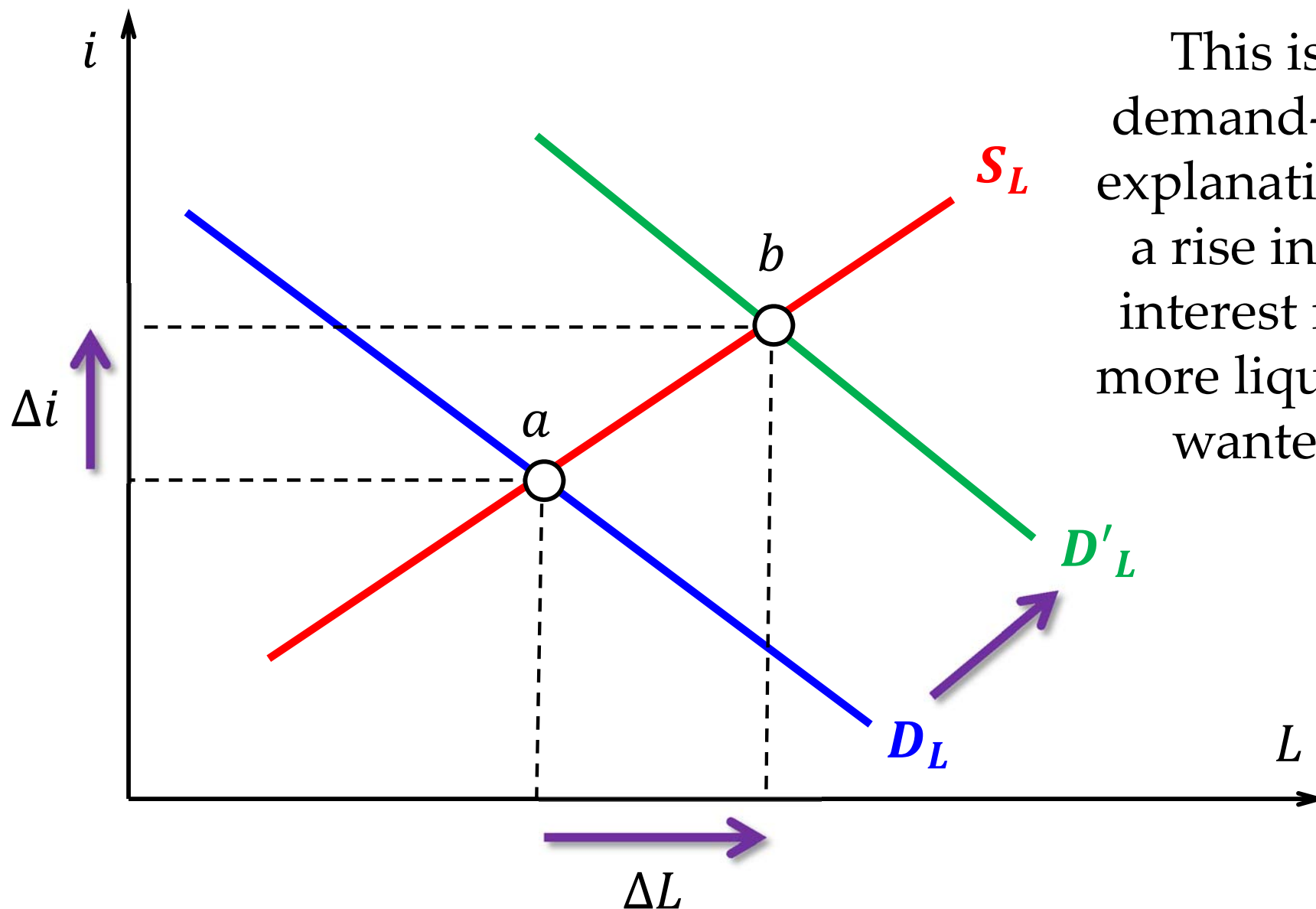






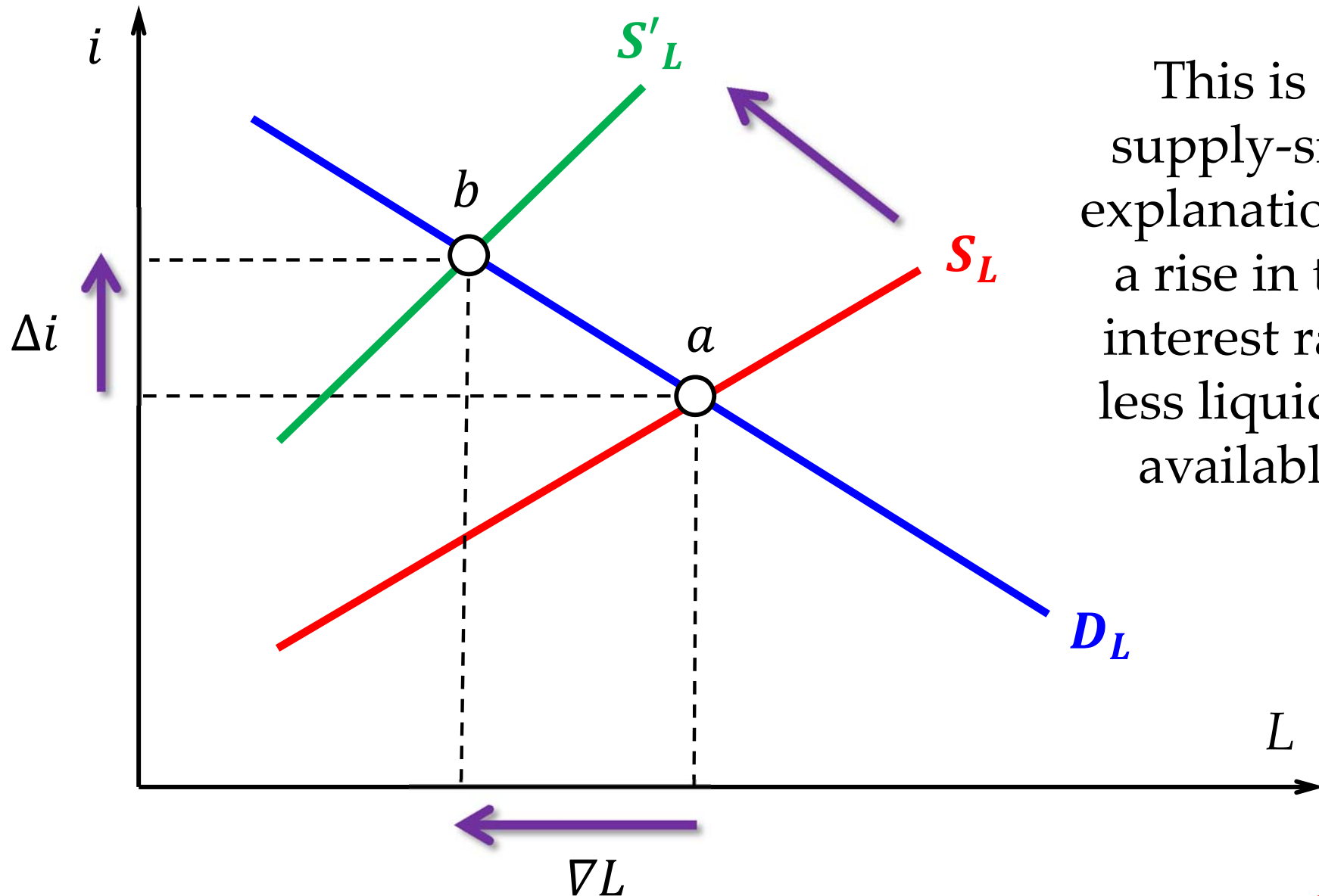


Equilibrium effects of a demand shift to the right



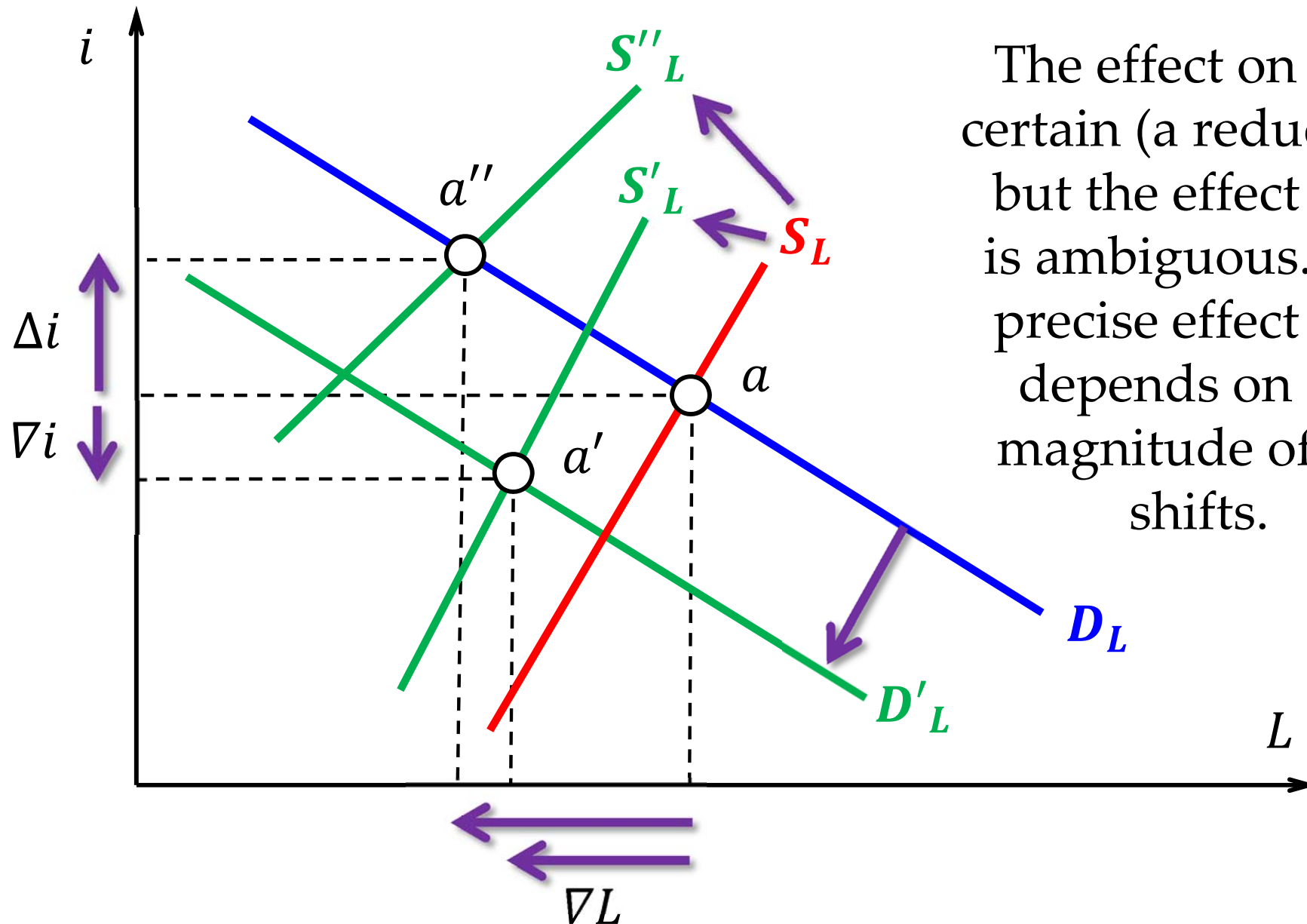
This is a demand-side explanation of a rise in the interest rate: more liquidity wanted.

Equilibrium effects of a supply shift to the right



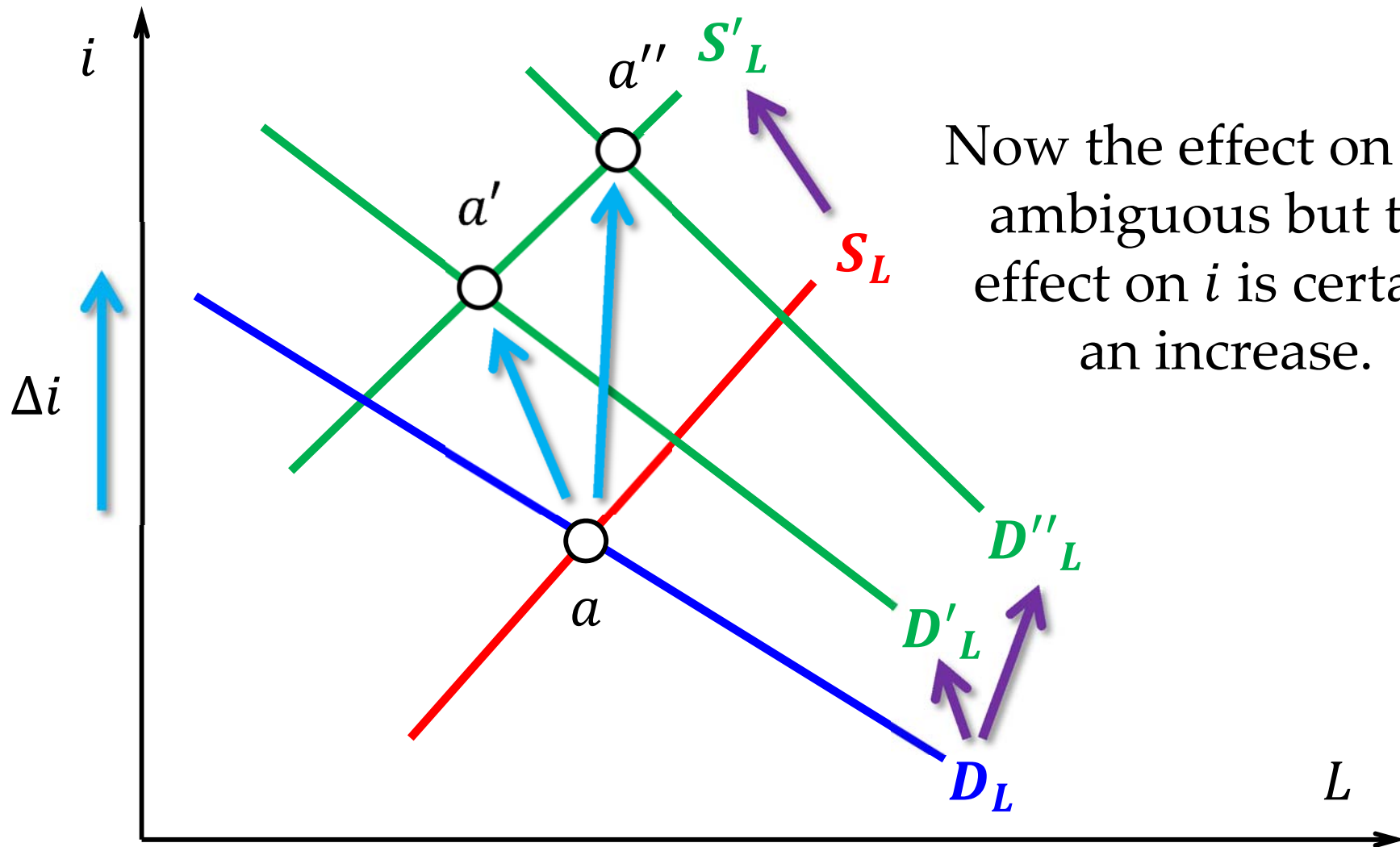
This is a supply-side explanation of a rise in the interest rate: less liquidity available.

Equilibrium effects of S_L to the left & D_L to the left



The effect on L is certain (a reduction) but the effect on i is ambiguous. The precise effect on i depends on the magnitude of the shifts.

Equilibrium effects of S_L to the left & D_L to the right



Now the effect on L is ambiguous but the effect on i is certain: an increase.

2. Real interest rate

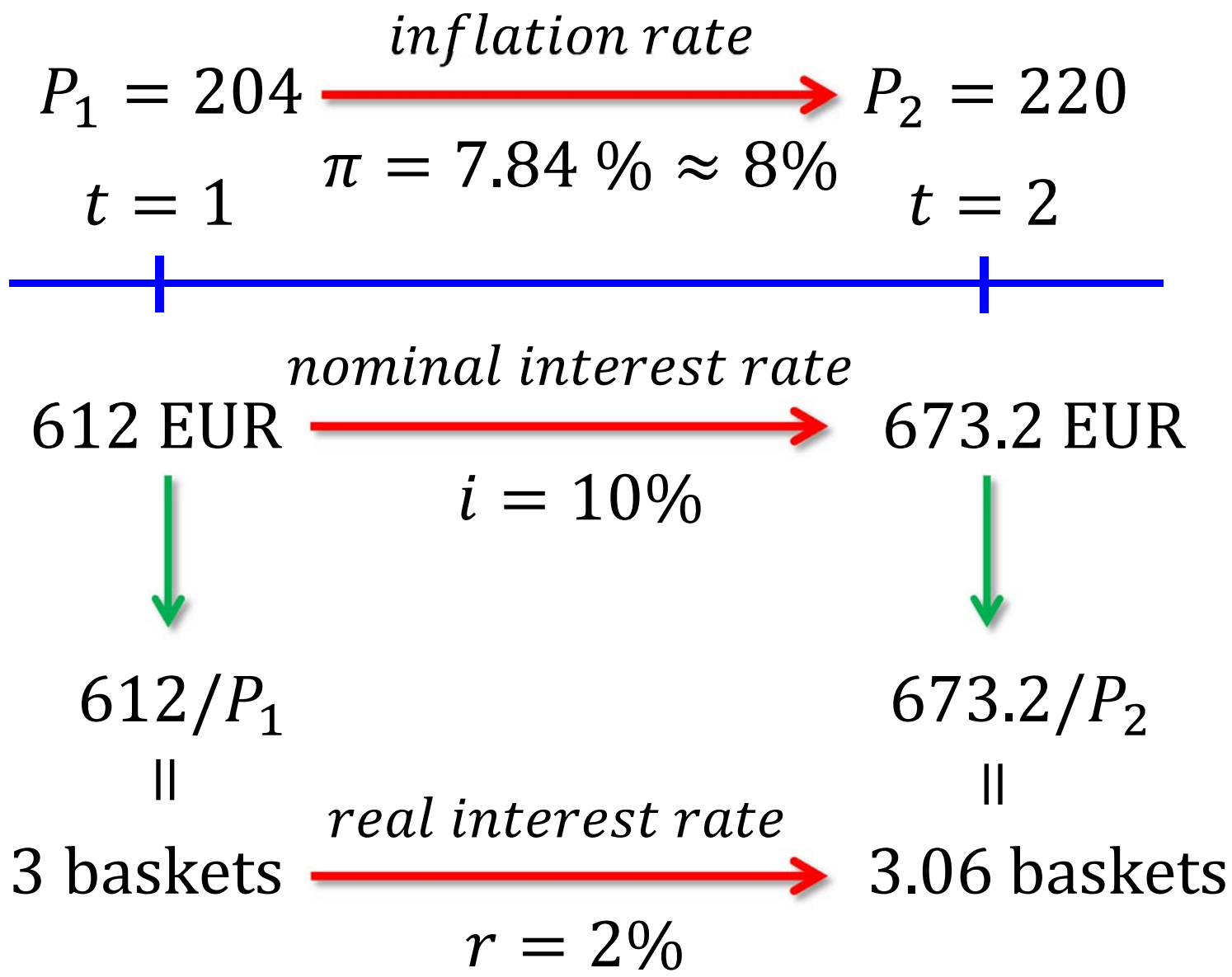
- Numerical example
- Fisher equation

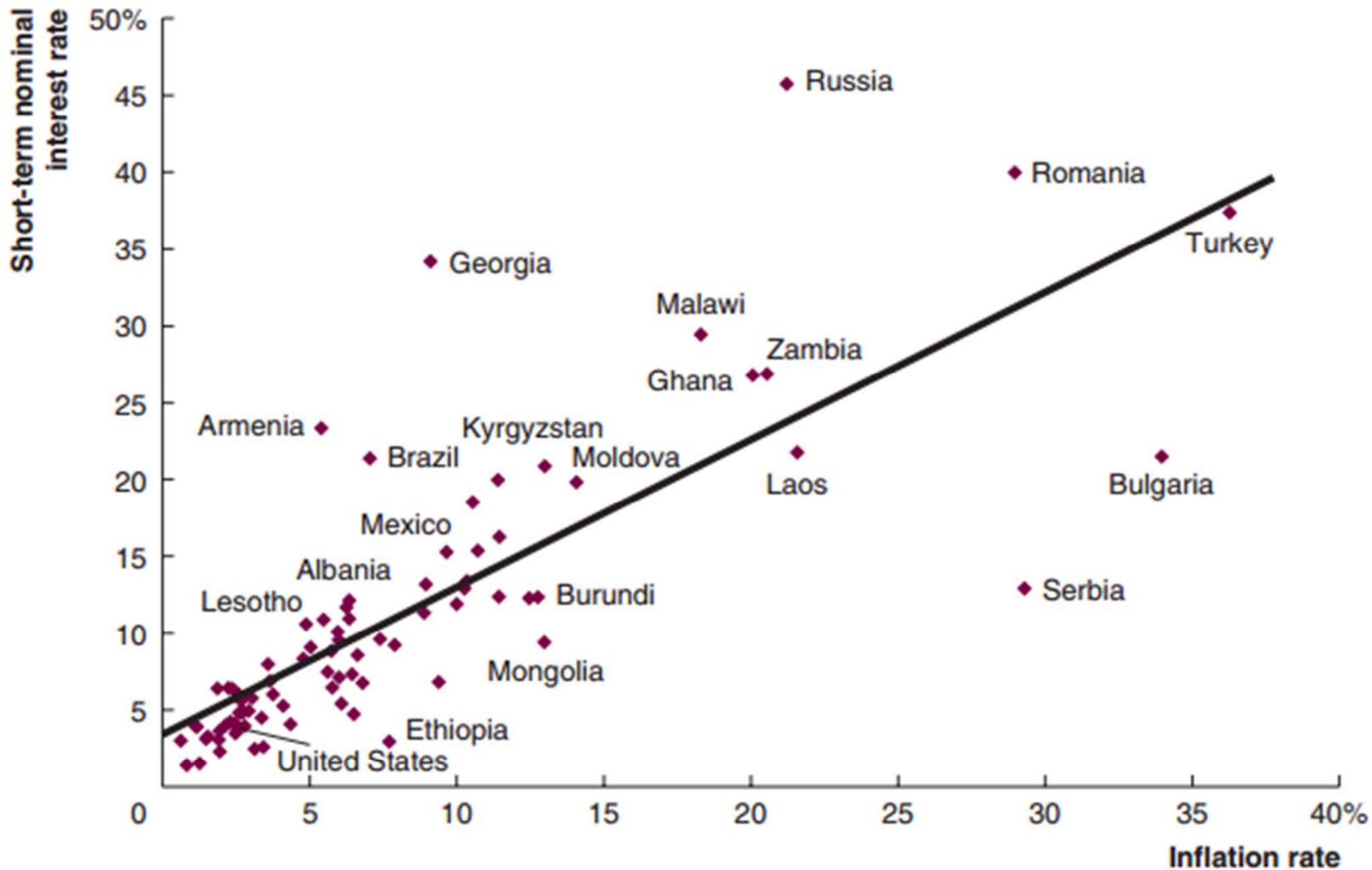
$$i = r + \pi$$

- Fisher effect

$$\uparrow \pi \Rightarrow \uparrow i$$

- Lucas paradox

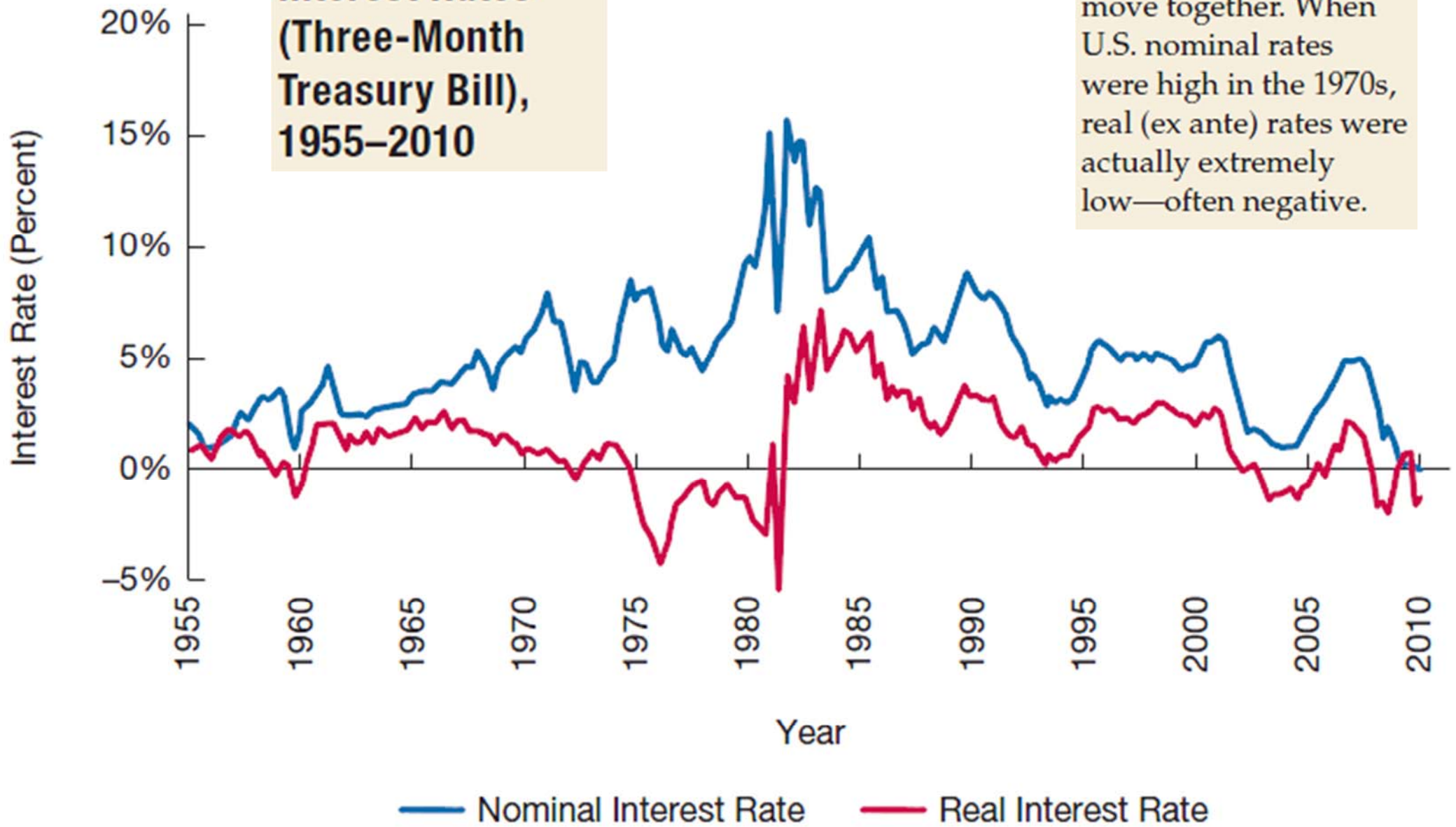




RG Hubbard, AP O'Brien, M Rafferty (2012): Macroeconomics, p. 204

Real and Nominal Interest Rates (Three-Month Treasury Bill), 1955–2010

Nominal and real interest rates often do not move together. When U.S. nominal rates were high in the 1970s, real (ex ante) rates were actually extremely low—often negative.



Frederic S Mishkin (2011): *Macroeconomics. Theory and practice*, p. 40

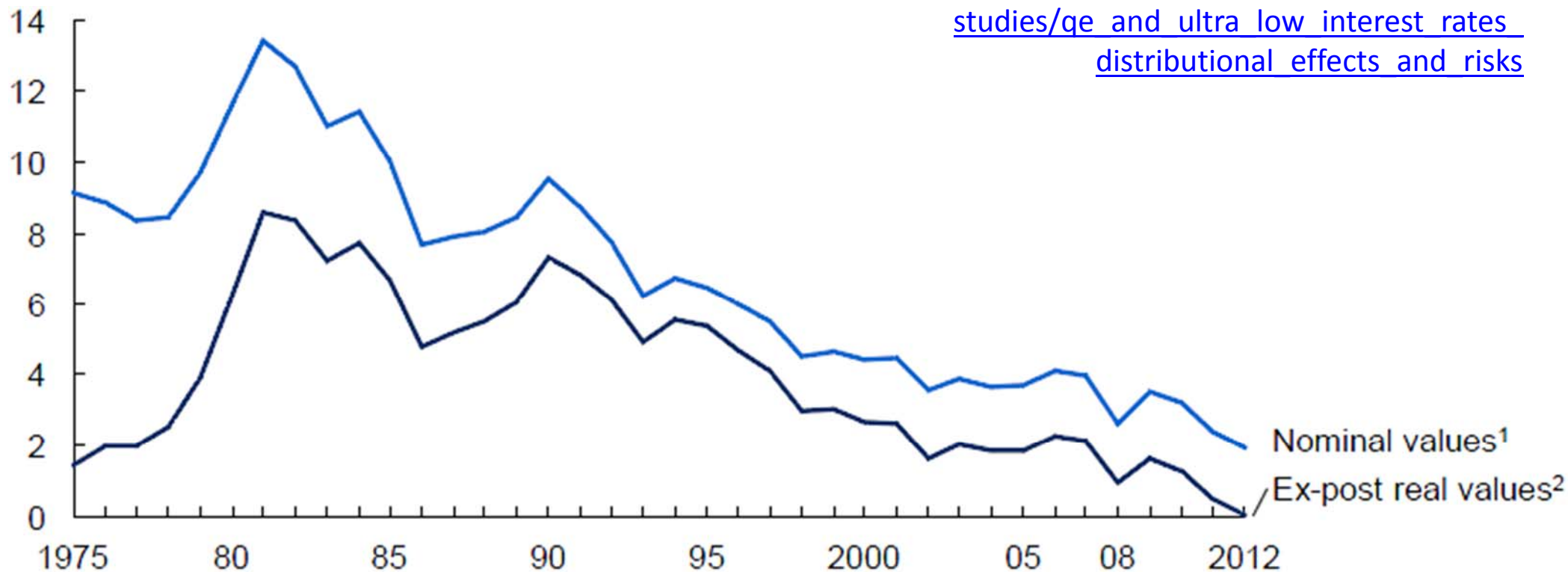
Central bank action has come at the end of a 30-year period of declining real and nominal interest rates

Long-term interest rates in developed economies

Yield to redemption on long-term government bonds, 1975–2012

%, GDP-weighted average

http://www.mckinsey.com/insights/economic_studies/qe_and_ultra_low_interest_rates/distributional_effects_and_risks

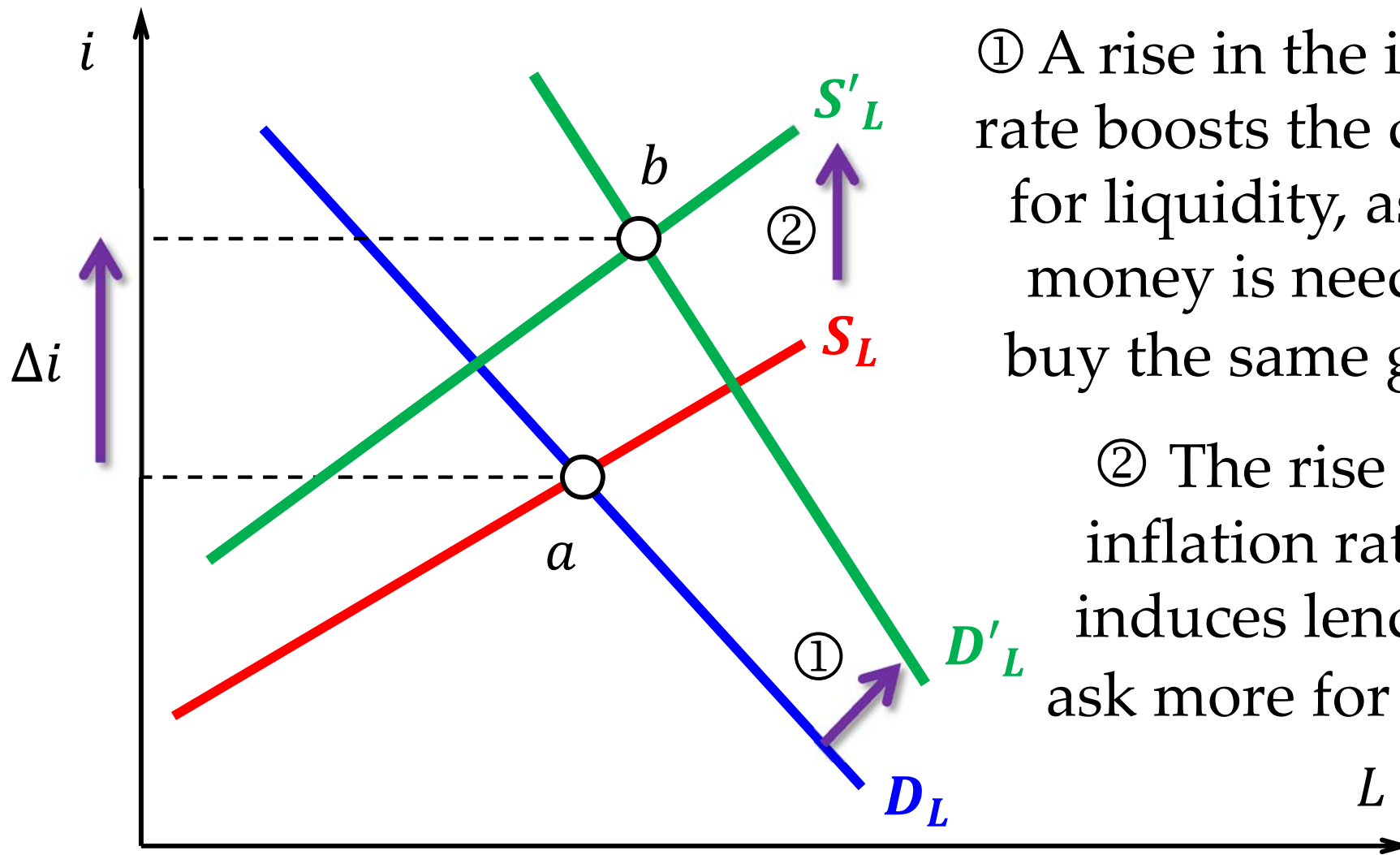


1 Ten-year government bonds, where available, for Australia, Canada, France, Germany, Italy, Japan, South Korea, Spain, the United Kingdom, and the United States.

2 Ex-post real values calculated as nominal yield on ten-year bonds in current year minus average realized inflation over next ten years. IHS Global Insight inflation estimates used for 2012–22.

SOURCE: International Monetary Fund International Financial Statistics; IHS Global Insight; Bloomberg; Organisation for Economic Co-operation and Development; McKinsey Global Institute analysis

The Fisher effect

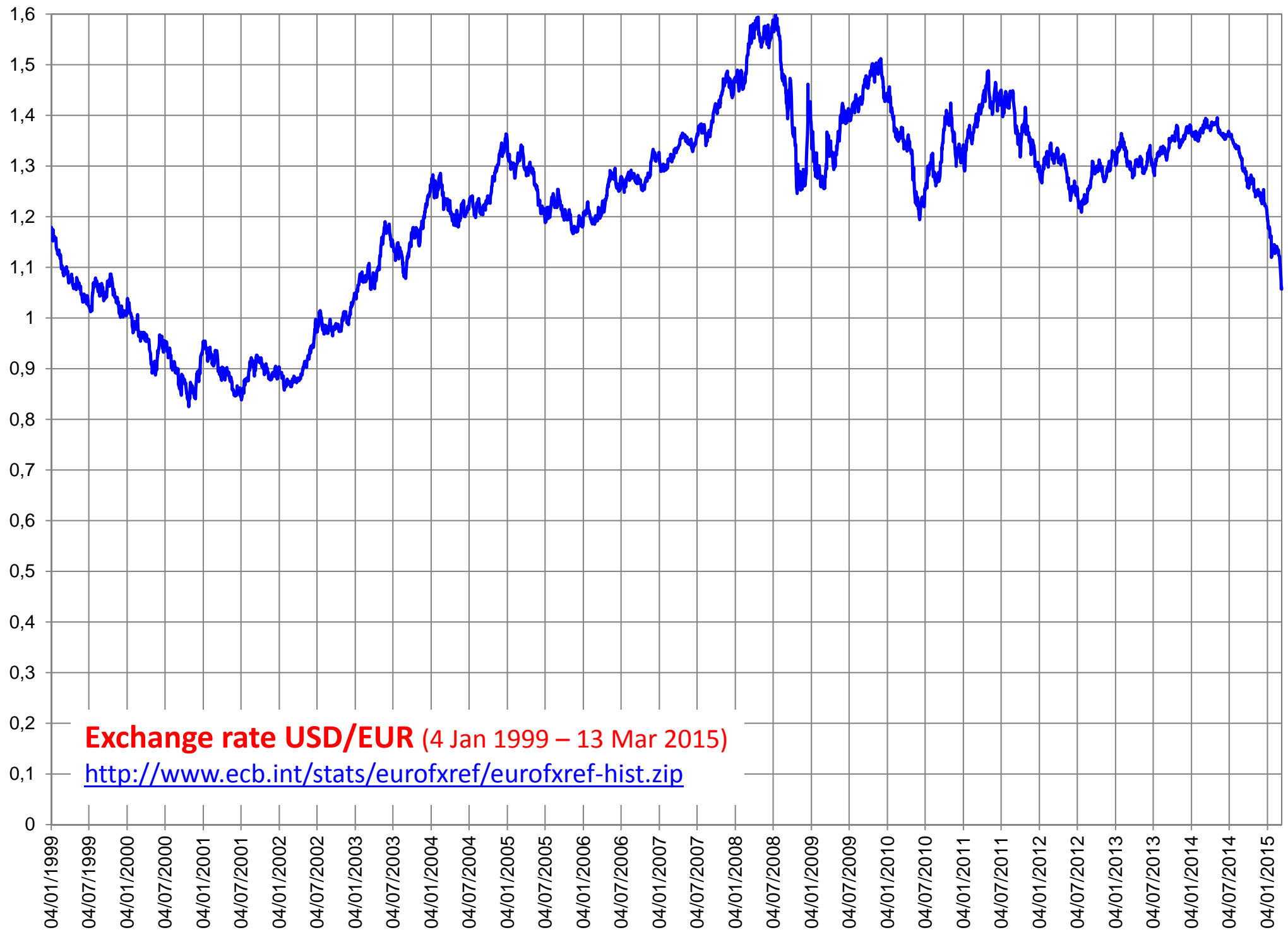


① A rise in the inflation rate boosts the demand for liquidity, as more money is needed to buy the same goods.

② The rise in the inflation rate also induces lenders to ask more for a loan.

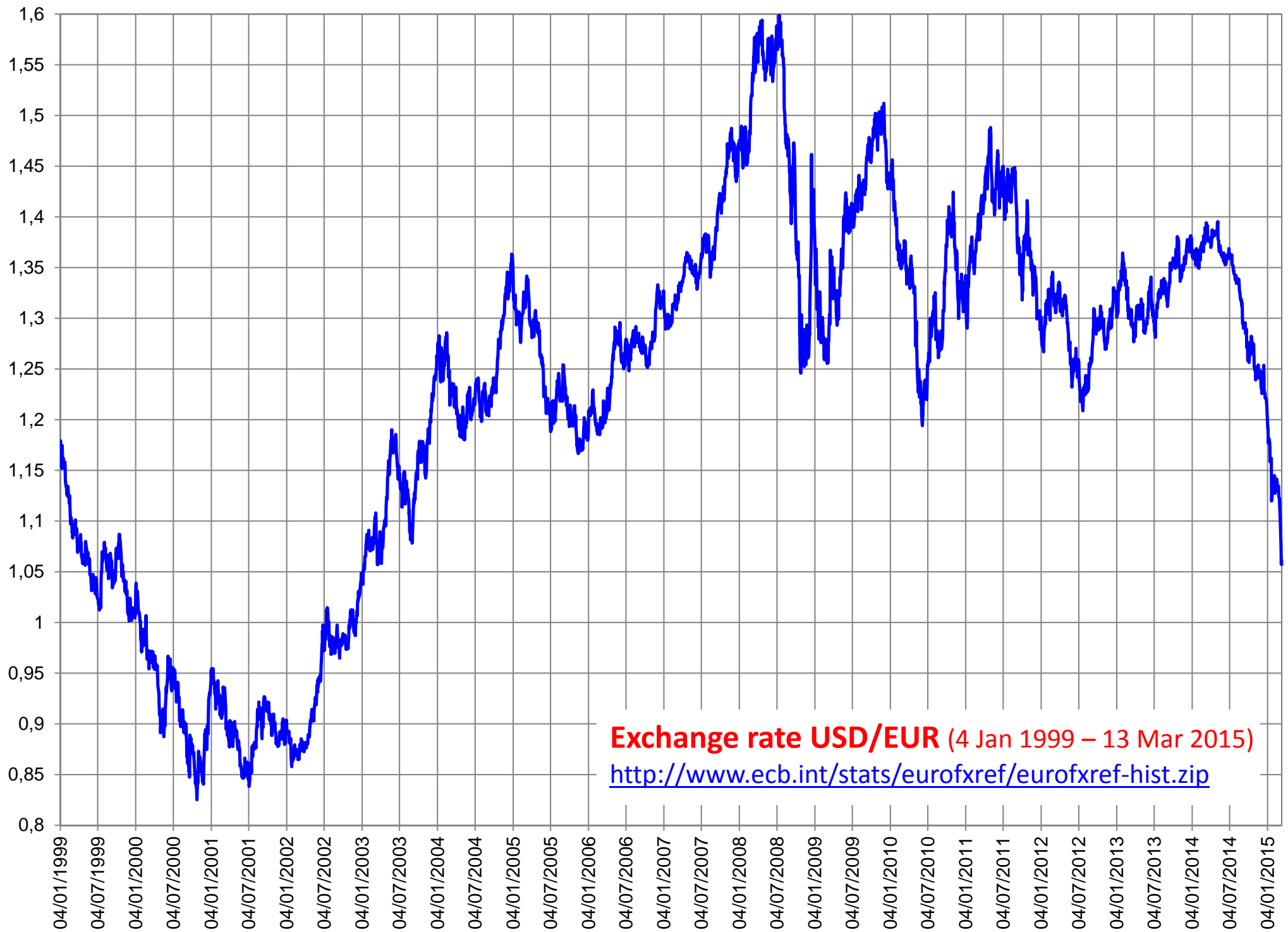
3. The exchange rate

- Definition: relative price between two currencies
- Direct and indirect quotation
- Appreciation / depreciation
- Characteristics of the currency market: largest and most liquid market in the world



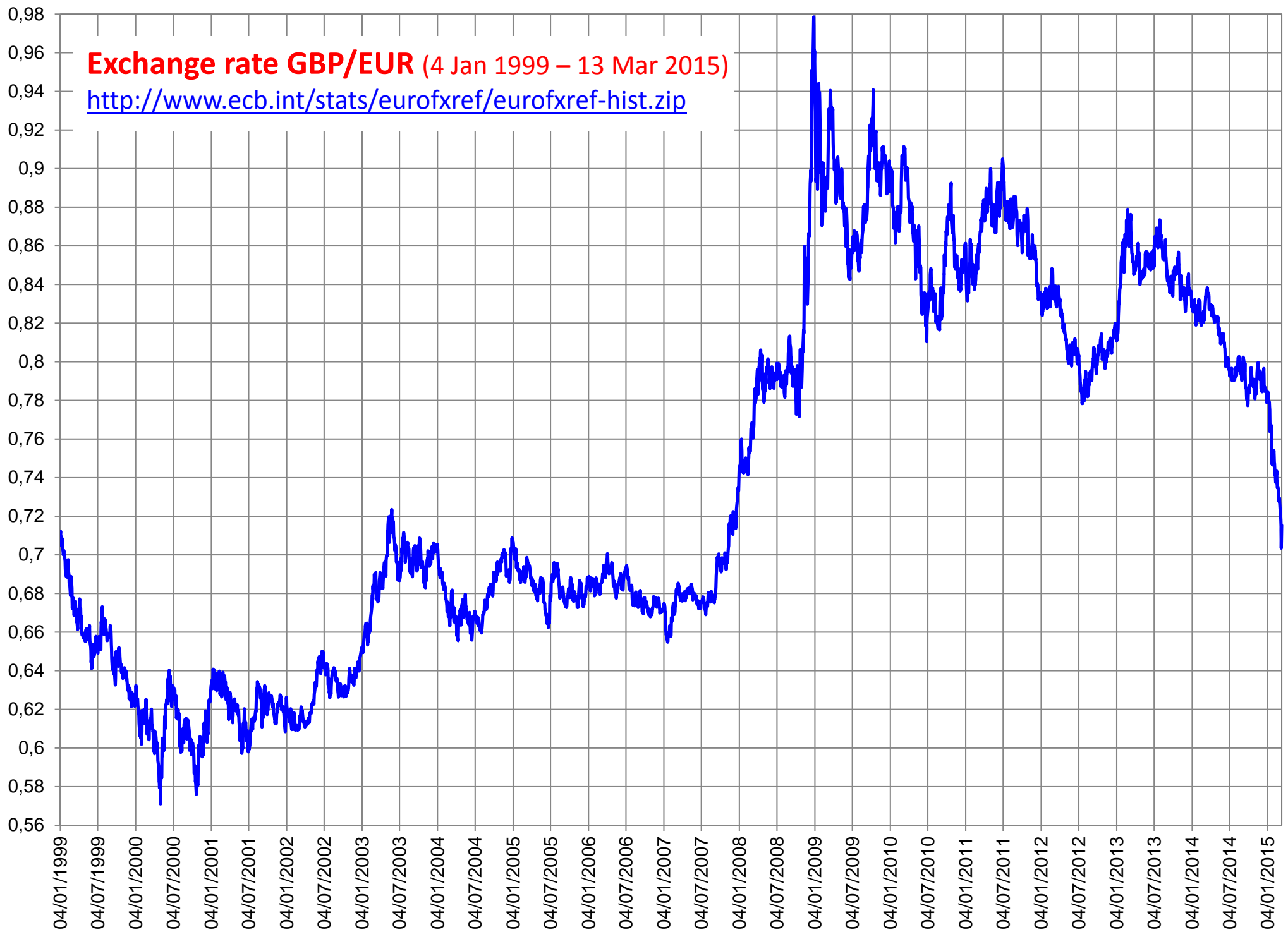
Exchange rate USD/EUR (4 Jan 1999 – 13 Mar 2015)

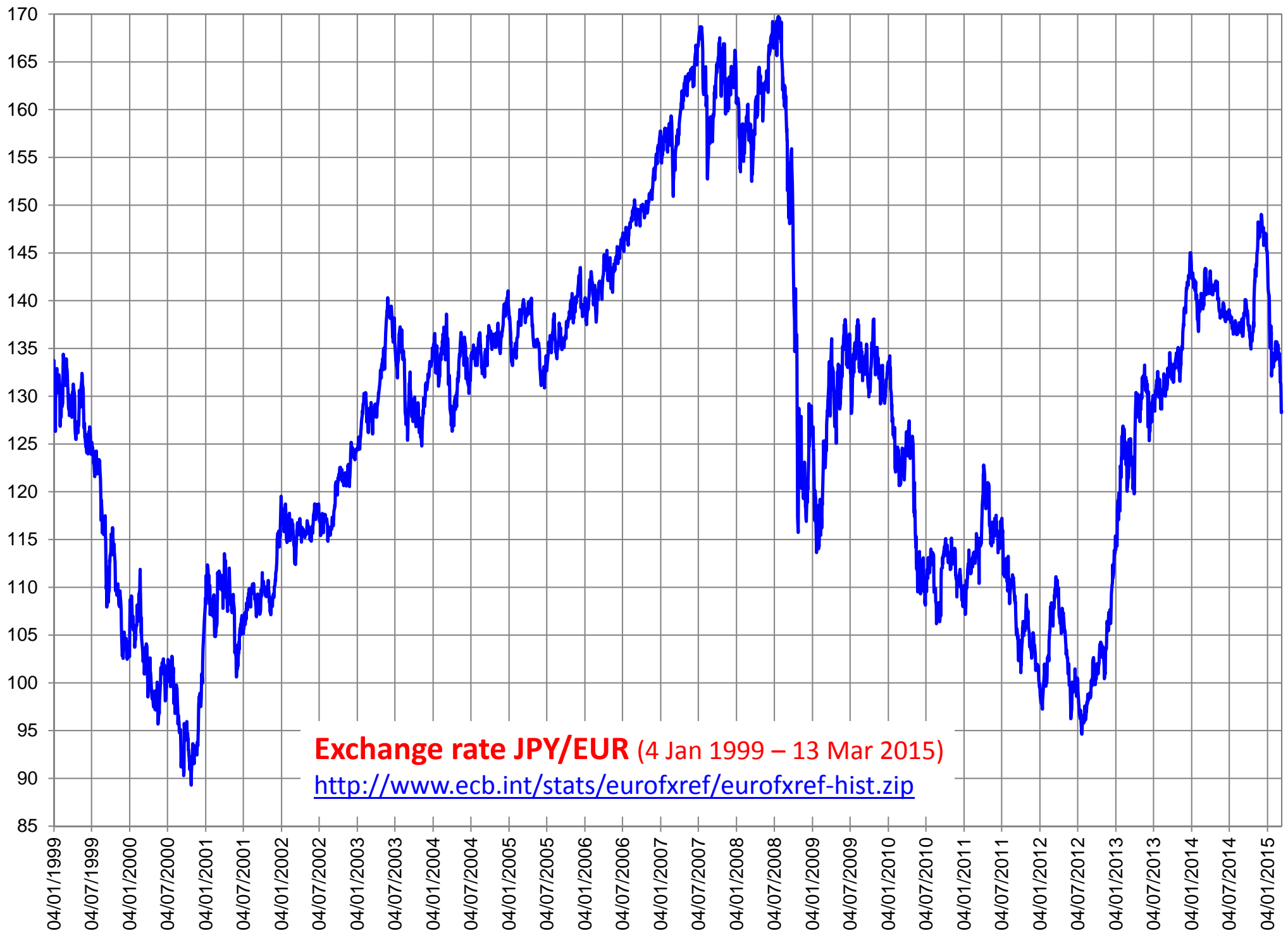
<http://www.ecb.int/stats/eurofxref/eurofxref-hist.zip>



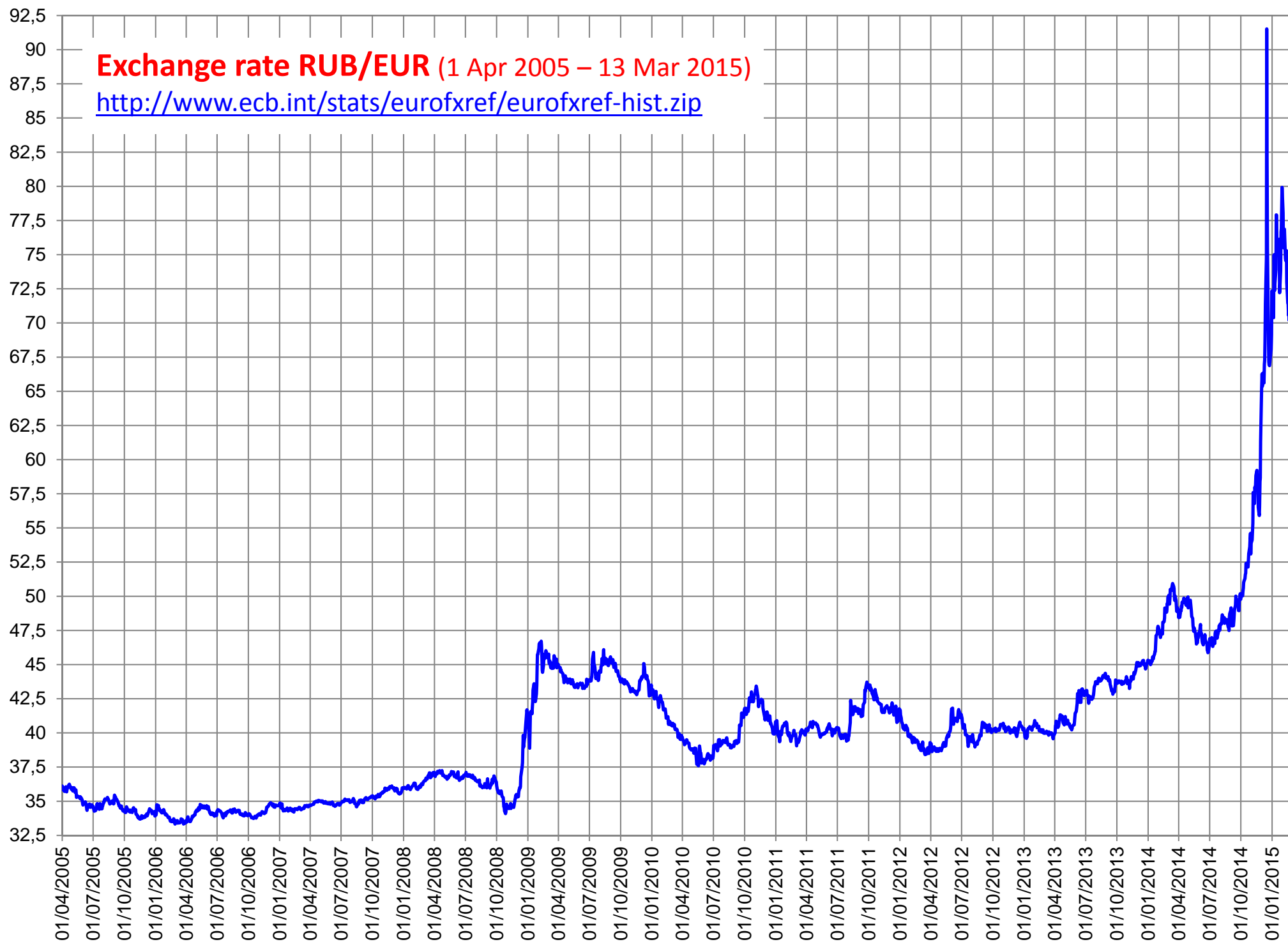
Exchange rate USD/EUR (4 Jan 1999 – 13 Mar 2015)

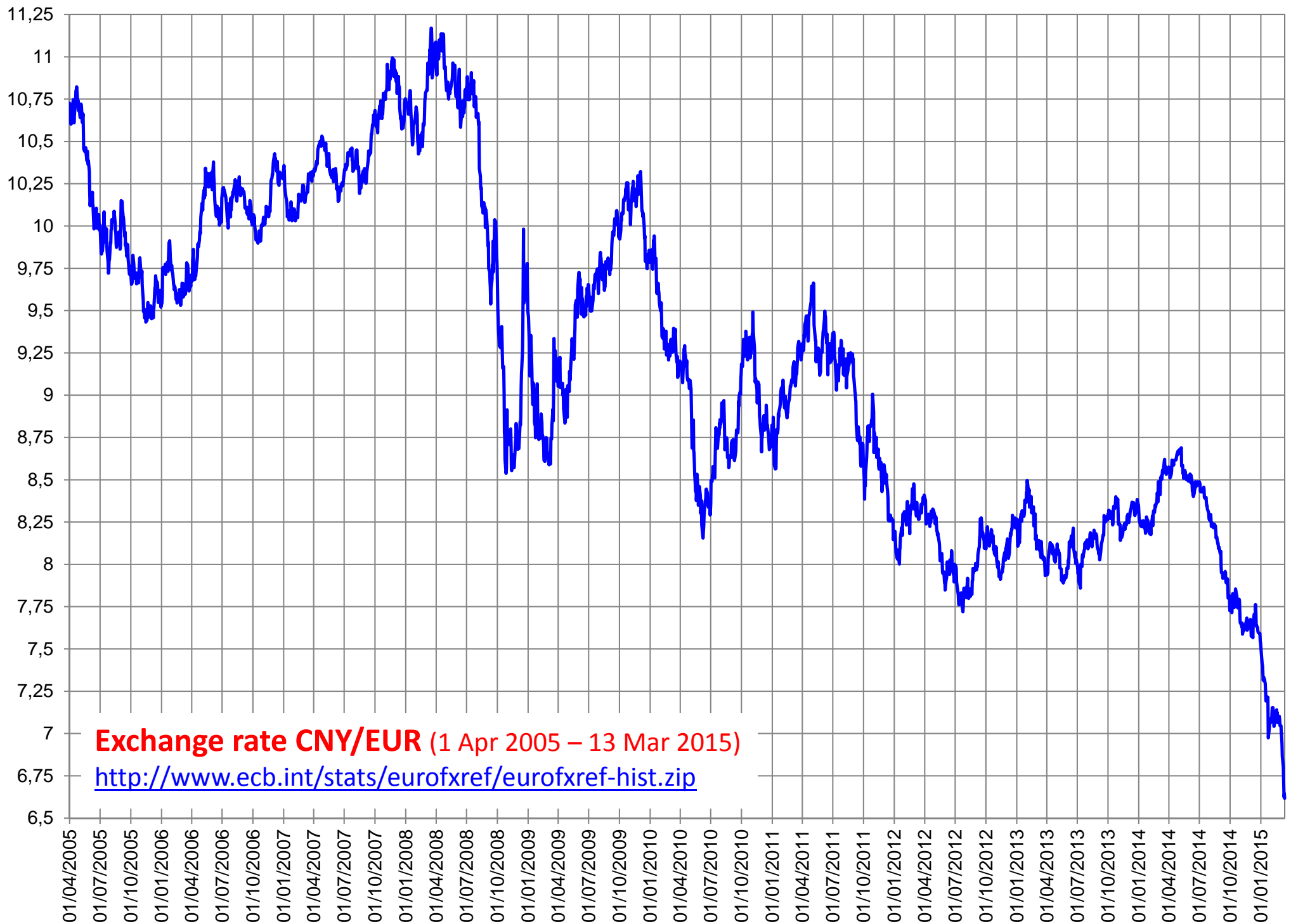
<http://www.ecb.int/stats/eurofxref/eurofxref-hist.zip>





Exchange rate JPY/EUR (4 Jan 1999 – 13 Mar 2015)
<http://www.ecb.int/stats/eurofxref/eurofxref-hist.zip>





Exchange rate CNY/EUR (1 Apr 2005 – 13 Mar 2015)

<http://www.ecb.int/stats/eurofxref/eurofxref-hist.zip>