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开放经济的宏观经济理论

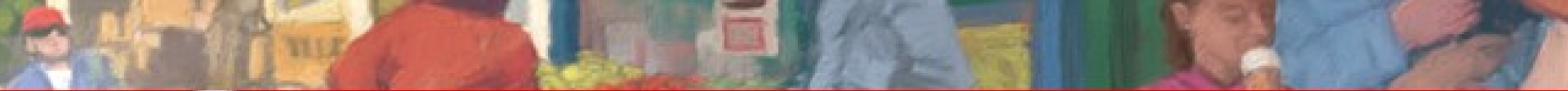
**A Macroeconomic Theory of the
Open Economy**



开放经济中关键的宏观经济变量

Key Macroeconomic Variables in an Open Economy

- **开放经济的重要宏观经济变量包括：** The important macroeconomic variables of an open economy include:
 - **净出口** net exports
 - **资本净流出** net capital outflow
 - **名义与实际汇率** nominal and real exchange rates



开放经济宏观经济模型

A Macroeconomic Model of an Open Economy

- 模型的目的是阐明决定经济的贸易余额、资本净流出和汇率的力量。

The goal of the model is to highlight the forces that determine the economy's trade balance, net capital outflow, and exchange rate.

- 它同时考察开放经济两个相关的市场——可贷资金市场和外汇市场。

It involves looking at two related markets in an open economy: the market for loanable funds and the market for



开放经济宏观经济模型的基本假设

Basic Assumptions of a Macroeconomic Model of an Open Economy

- 模型将经济的 GDP 当成给定的。

The model takes the economy's GDP as given.

- 它由生产要素供给和可得的生产技术决定。

It is determined by the supplies of the factors of production and by the available production technology.

- 模型将经济的价格水平当成给定的。

The model takes the economy's price level as given.

- 它由货币的供求决定。

It is

determined by the supply and demand for money



可贷资金市场

The Market for Loanable Funds

$$S_D = I$$

- 在国内的可贷资金市场上，均衡利率水平下，人们想要储蓄的数量恰好平衡了所需的投资数量。

In the *domestic* market for Loanable funds, the amount that people want to save exactly balances the desired quantities of investment at the equilibrium interest rate.

可贷资金市场：供给与需求

The Market for Loanable Funds: Supply and Demand

- 可贷资金的供给来自于**国内储蓄**（ S_D ）
The supply of loanable funds comes from domestic saving (S_D).
- 它是国民储蓄（ S ）减去资本净流出；即储蓄者在国内的储蓄。
It is national saving minus net capital outflow, i.e., domestic savings.

$$S_D \equiv S - NCO$$

可贷资金市场：供给与需求

The Market for Loanable Funds: Supply and Demand

- 更高的国内实际利率提高了国内可贷资金供给（ S_D ）的数量。

A higher *domestic* real interest rate raises the quantity of domestic loanable funds supplied.

- 更高的国内实际利率鼓励人们进行（总）储蓄
，
A higher *domestic* real interest rate encourages people to increase (total) savings,
- 并减少资本净流出。
and to decrease net capital outflow.

可贷资金市场：供给与需求

The Market for Loanable Funds: Supply and Demand

- 可贷资金的需求来自于国内投资（ I ）。

The demand for loanable funds comes from domestic investment (I).

- 更高的国内利率使借款为国内投资项目筹资的成本更高；因而抑制了投资，减少了国内可贷资金需求量。

A higher *domestic* interest rate makes borrowing to finance domestic capital projects more costly; thus it discourages investment and reduces the quantity of domestic loanable funds

可贷资金市场

The Market for Loanable Funds

- 可贷资金的供求依赖于实际利率。

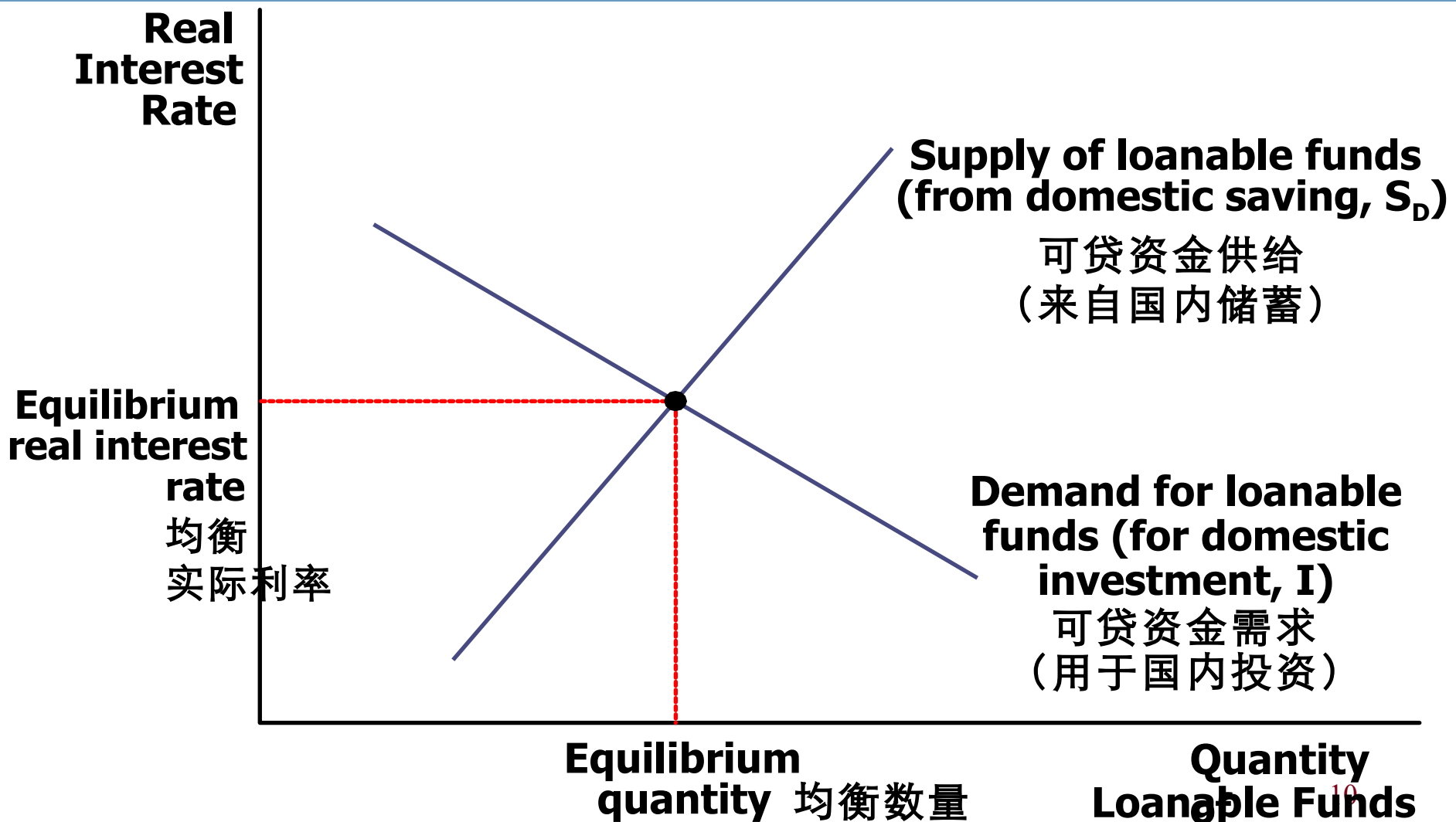
The supply and demand for loanable funds depend on the real interest rate.

- 利率调整以使可贷资金的供求平衡。

The interest rate adjusts to bring the supply and demand for loanable funds into balance.

可贷资金市场

The Market for Loanable Funds



可贷资金市场

The Market for Loanable Funds

在均衡利率水平上，人们想要在国内储蓄的数量恰好平衡了所需的国内投资。

At the equilibrium interest rate, the amount that people want to save at home exactly balances the desired quantities of domestic investment.



外汇市场

The Market for Foreign-Currency Exchange

- 在外汇市场上，美元与国外通货进行交易。

In the market for foreign-currency exchange, U.S. dollars are traded for foreign currencies.

- 外汇市场的双方由资本净流出 **NCO** 和净出口 **NX** 来代表。

The two sides of the foreign-currency exchange market are represented by **NCO** and **NX**.



外汇市场

The Market for Foreign-Currency Exchange

- **NCO** 代表为了购买国外资产而供给的美元（需要的外币）量。

NCO represents the quantity of dollars supplied (foreign currency demanded) for the purpose of buying foreign assets.

- 例如，一个美国的共同基金想要购买日本政府债券。
E.g., a U.S. mutual fund wants to buy a Japanese government bond.

- **NX** 代表为了购买美国物品与劳务的净出口而需要的美元（供给的外币）量。

NX represents the quantity of dollars demanded (foreign currency supplied) for the purpose of buying U.S. net exports of goods and services.

- 例如，一家日本航空公司想要购买波音制造的飞机。
E.g., a Japanese airline wants to buy a plane made by Boeing.



外汇市场

The Market for Foreign-Currency Exchange

- 外汇市场的美元（和外汇）供求最终平衡。

The supply of and demand for dollar (or foreign currency) must be equal in the market for foreign currency exchange.

- 对经济整体而言， NCO 和 NX 必须相互平衡，即：

For an economy as a whole, NCO and NX must balance each other out, or:

$$NCO = NX$$



外汇市场

The Market for Foreign-Currency Exchange

平衡外汇市场供求的价格是**实际汇率**。

The price that balances the supply and demand for foreign-currency is the **real exchange rate**.

外汇市场：需求

The Market for Foreign-Currency Exchange: Demand

- 本币的需求曲线向下倾斜。

The demand curve for domestic currency is downward sloping.

- 更高的实际汇率使得国内物品变得昂贵，减少了国内物品的国外需求量。

A higher real exchange rate makes domestic goods more expensive and reduces the quantity demanded of domestic goods by foreigners.

- 给定国内物价水平，这减少了购买这些物品所需的美元量。

Given domestic price level, this reduces the quantity of dollar demanded to buy

外汇市场：供给

The Market for Foreign-Currency Exchange: Supply

- **（本币的）供给曲线是垂直的。**
The supply curve is vertical.
- **资本净流出的供给数量与实际汇率无关** **The quantity of dollars supplied for net capital outflow is unrelated to the real exchange rate.**

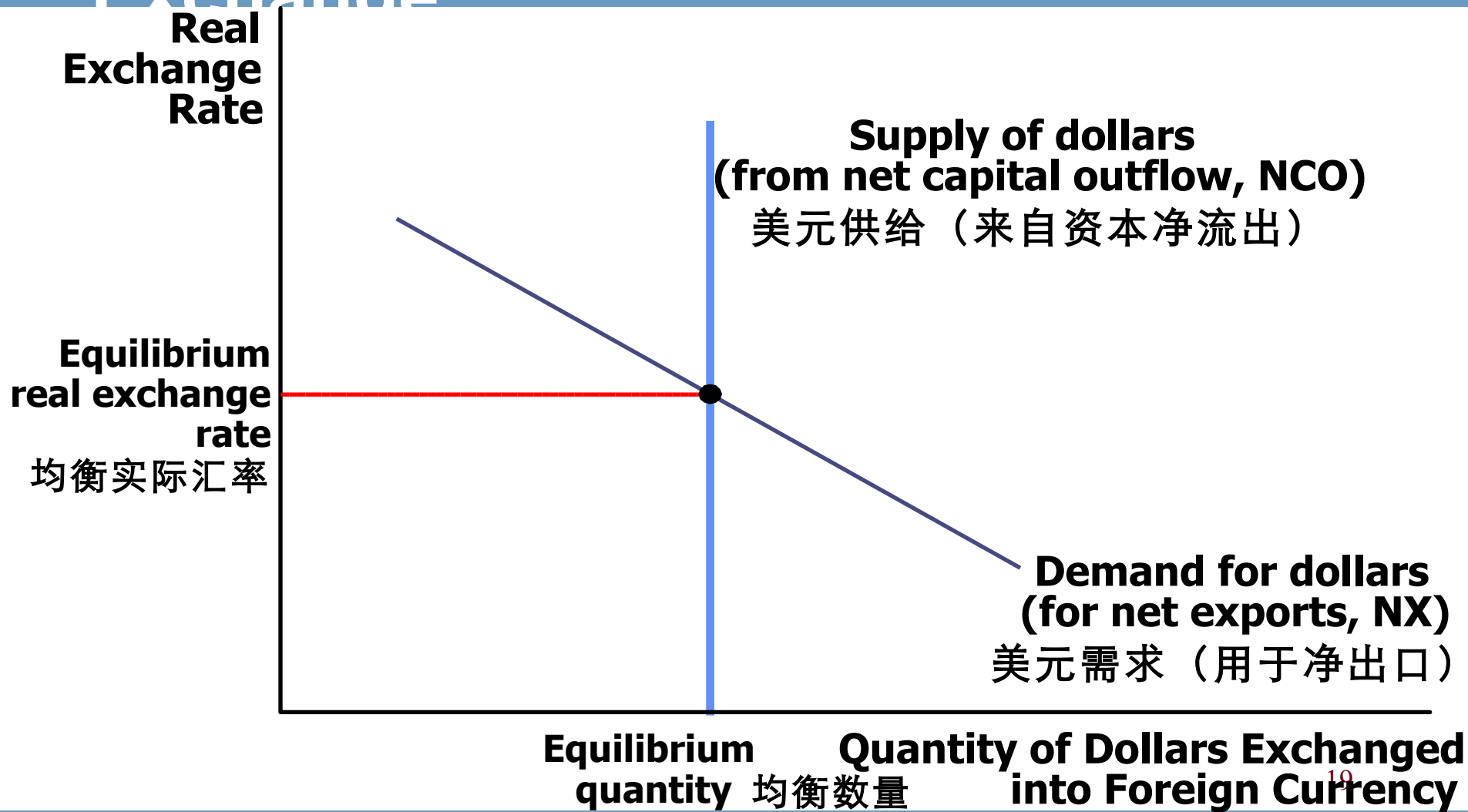
外汇市场：供给

The Market for Foreign-Currency Exchange: Supply

- 考虑将 1 美元投资日元资产。假设日本的利率为 5 %。
- 假定美元对日元的汇率为 1 美元换 80 日元。
- 先将 1 美元换成 80 日元，投资 1 年后得到 $80 \times (1 + 5\%) = 84$ 日元。
- 然后再换回美元，得到 1.05 美元。
- 现在，美元对日元汇率变为 1 美元换 100 日元。
- 则将 1 美元投资日元资产，1 年后得到 $100 \times (1 + 5\%) = 105$ 日元。
- 换回美元仍然是 1.05 美元。
- 假设：汇率在投资期间不变，或者说，投资者预期的未来汇率等于当前汇率。

外汇市场

The Market for Foreign-Currency Exchange



外汇市场

The Market for Foreign-Currency Exchange

- **实际汇率调整以平衡美元的供求。**

The real exchange rate adjusts to balance the supply and demand for dollars.

- **在均衡的实际汇率上，购买净出口的美元需求恰好平衡了换成外币以购买国外资产的美元供给。**

At the equilibrium real exchange rate, the demand for dollars to buy net exports exactly balances the supply of dollars to be exchanged into foreign currency to buy assets abroad.

购买力平价是一种特例

Purchasing-Power Parity as a Special Case

- 购买力平价的汇率理论认为实际汇率是固定的，因为国际贸易对国际价格差作出了迅速反应。

The purchasing-power parity theory of the exchange rate asserts that the real exchange rate is fixed, since international trade responds quickly to international price differences.

- 换句话说，净出口对实际汇率的微小变动反应极大。

In other words, net exports are highly responsive to small changes in the real exchange rate.

- 这表明外汇市场的需求曲线是水平的——向下倾斜的特例

The demand curve in the foreign-currency exchange market would be horizontal - a special



资本净流出：两个市场之间的联系

Net Capital Outflow: The Link between the Two Markets

- **资本净流出将可贷资金市场与外汇市场联系起来。**

Net capital outflow links the loanable funds market and the foreign-currency exchange market.

资本净流出如何依赖于利率

How Net Capital Outflow Depends on the Interest rate

- 资本净流出的关键决定因素（之一）是国内的实际利率。

The key determinant of net capital outflow is the domestic real interest rate.

- 国内的实际利率上升抑制了人们购买外国资产，而鼓励了外国人购买本国资产

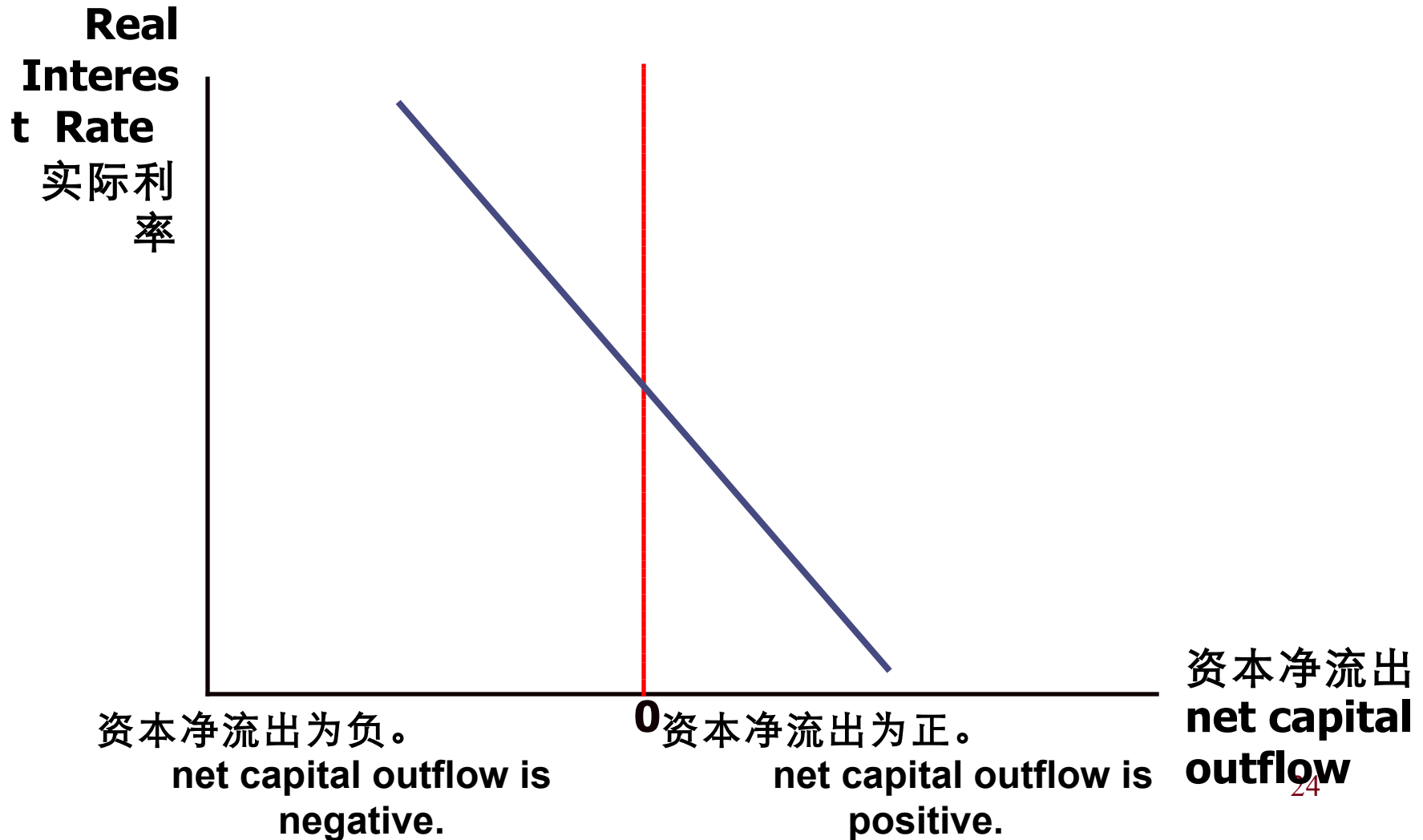
An increase in domestic real interest rate discourages people from buying foreign assets and encourages foreigners to buy domestic assets.

- 这减少了资本净流出。

It thus decreases its net capital outflow.

资本净流出如何依赖于利率

How Net Capital Outflow Depends on the Interest rate



资本净流出：两个市场之间的联系

Net Capital Outflow: The Link between the Two Markets

- 资本净流出的数量由可贷资金市场决定。

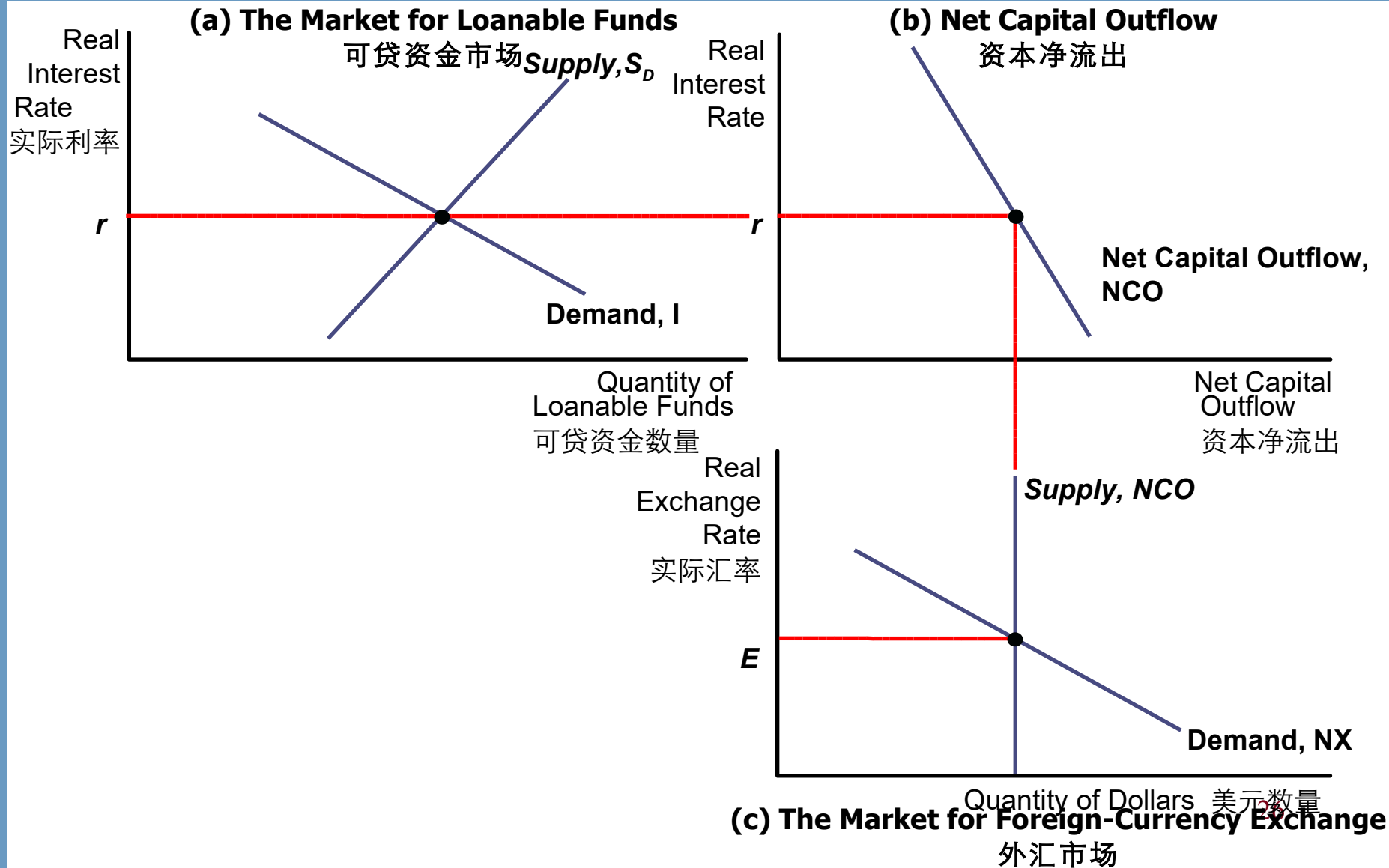
The equilibrium amount of NCO is determined by the loanable funds market.

- 资本净流出进而决定外汇市场的（本币）供给。

And NCO in turn determines the supply in the foreign-currency exchange market.

开放经济的实际均衡

The Real Equilibrium in an Open Economy



开放经济中的均衡

Equilibrium in the Open Economy

- 在国内可贷资金市场上，供给来自于国内储蓄，需求来自于国内投资。

In the domestic market for loanable funds, supply comes from domestic saving and demand comes from domestic investment.

- 在外汇市场上，（本币的）供给来自于资本净流出，需求来自于净出口。

In the market for foreign-currency exchange, supply comes from net capital outflow and demand comes from net exports

开放经济中的均衡

Equilibrium in the Open Economy

- 可贷资金市场与外汇市场的价格同时调整以平衡两个市场上的供求。

Prices in the loanable funds market and the foreign-currency exchange market adjust *simultaneously* to balance supply and demand in these two markets.

- 这样一来，它们就决定了国民储蓄、国内投资、资本净流出与净出口等宏观经济变量。

As they do, they determine the macroeconomic variables of national saving, domestic investment, net capital outflow, and net exports



政策与事件如何影响开放经济

How Changes in Policies and Events Affect an Open Economy

- **开放经济的重要宏观经济变量的数量 and 变化依赖于下列因素：**

The magnitude and variation in important open-economy macroeconomic variables depend on the following:

- **政府预算赤字 Government budget deficits**
- **贸易政策 Trade policies**
- **政治与经济稳定性**

**Political and economic
stability**



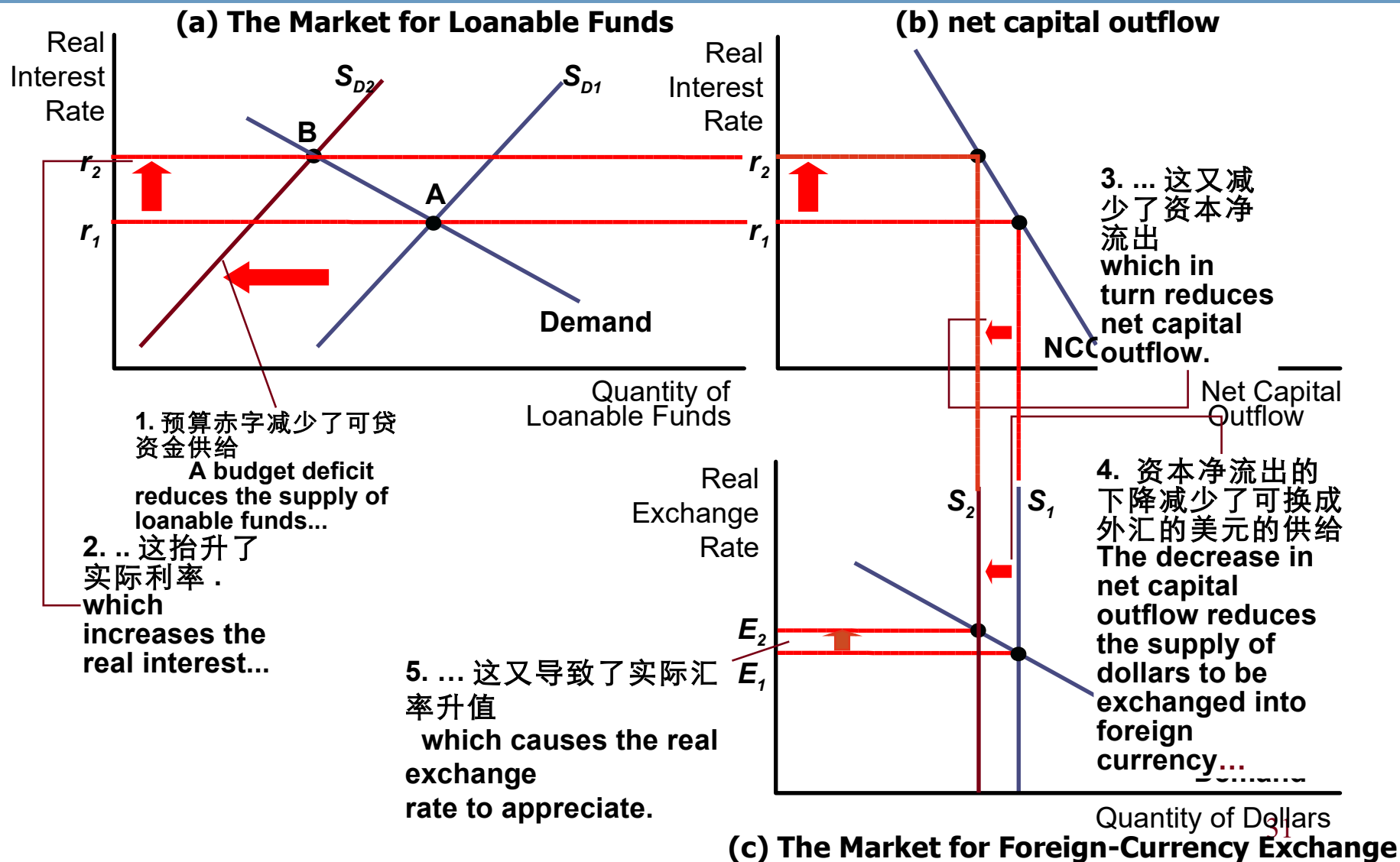
政府预算赤字

Government Budget Deficits

- 在一个开放经济中，政府预算赤字（支出增加）
In an open economy,
government budget deficits . . .
 - ...减少了可贷资金供给
reduces the supply of loanable funds,
 - ...抬升了利率
drives up the interest rate,
 - ...挤出了国内投资
crowds out domestic investment,
 - ...导致资本净流出下降和贸易赤字增加
cause net capital outflow
to fall and trade deficit to rise

政府预算赤字的影响

The Effects of Government Budget Deficit



预算赤字对可贷资金市场的影响

Effect of Budget Deficits on the Loanable Funds Market

- 政府预算赤字减少了国内储蓄，于是
A government budget deficit reduces domestic saving, which ...
... 将可贷资金供给曲线向左移动，
于是 shifts the supply curve for loanable funds to the left, which
... 抬升了利率
raises interest rates.

政府预算赤字对资本净流出的影响

Effect of Budget Deficits on net capital outflow

- **更高的利率减少了资本净流出。 Higher interest rates reduce net capital outflow.**

对外汇市场的影响

Effect on the Foreign-Currency Exchange Market

- 资本净流出的下降减少了用来换取外汇的美元的供给。

A decrease in net capital outflow reduces the supply of dollars to be exchanged into foreign currency.

- 这导致了实际汇率的升值。

This causes the real exchange rate to *appreciate*.

- 净出口下降，即贸易赤字增加。

Net export will decrease, or trade deficit will increase.



贸易政策

Trade Policy

- **贸易政策**是直接影晌一国进口或出口物品与服务数量的政府政策。

A **trade policy** is a government policy that directly influences the quantity of goods and services that a country imports or exports.

- **关税**：对进口物品的征税。

Tariff: A tax on an imported good.

- **进口配额**：对在国外生产而在国内销售的物品的数量的限制。

Import quota: A limit on the quantity of a good produced abroad and sold

进口配额的影响

Effect of an Import Quota

- 进口配额减少了进口。给定其他条件不变，这增加了净出口。

An import quota reduces imports, thus increases NX, *ceteris paribus*.

- 因为外国人需要美元来购买美国的净出口，外汇市场上对美元的需求增加了。

Because foreigners need dollars to buy U.S. net exports, there is an increased demand for dollars in the market for foreign-currency.

进口配额的影响

Effect of an Import Quota

- 因为可贷资金市场上什么也没有发生，所以利率不会改变。

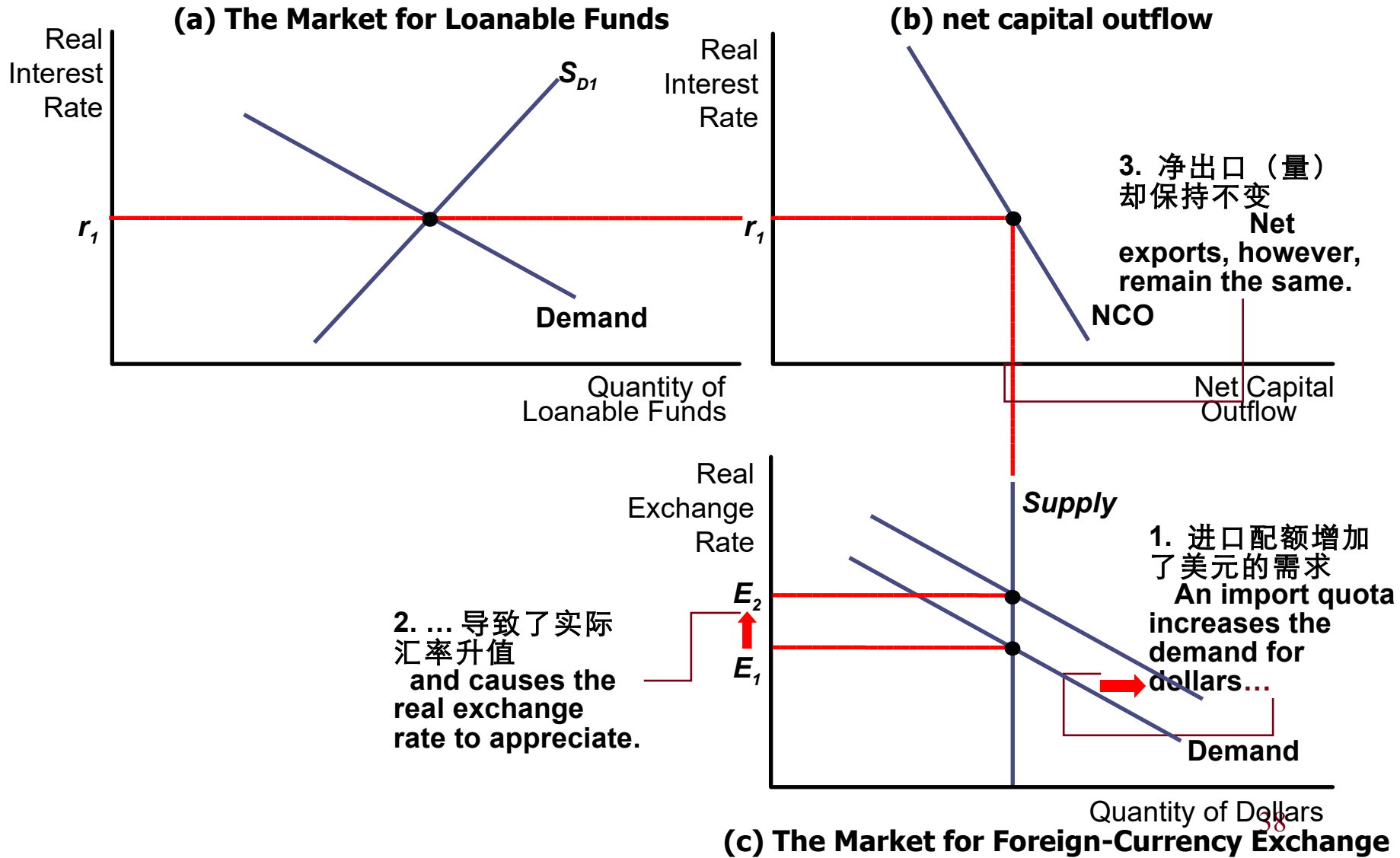
There is no change in the interest rate because nothing happens in the loanable funds market.

- 资本净流出没有改变。

There is no change in net capital outflow,

进口配额的影响

The Effects of an Import Quota



进口配额的影响

Effect of an Import Quota

- 进口配额导致了实际汇率的升值，但没有改变净出口（量）。

An import quota leads to an appreciation of the real exchange rate, but does not change the NX.

- 外汇市场上美元的升值鼓励了进口但抑制了出口。

An appreciation of the dollar in the foreign exchange market encourages imports and discourages exports.

- 这就弥补了由于进口配额导致的净出口一开始的增加。

This offsets the initial

贸易政策

Trade Policy

- 因为贸易政策不改变国民储蓄与国内投资，他们也就不影响贸易余额。

Because they do not change national saving or domestic investment, trade policies do not affect the trade balance.

- 对于给定水平的国民储蓄与国内投资，实际汇率调整以保持贸易余额不变。

For a given level of national saving and domestic investment, the real exchange rate adjusts to keep the trade balance the same.

- 贸易政策对微观市场的影响大于它对宏观市场的影响。

Trade policies have a greater effect on microeconomic than on macroeconomic markets.



政治不稳定与资本外逃

Political Instability and Capital Flight

资本外逃是资金大量和突然地转移出某国，一般是由于政治不稳定。**Capital flight** is a large and sudden movement of funds out of a country, usually due to political instability.

政治不稳定与资本外逃

Political Instability and Capital Flight

- 如果投资者开始担心他们投资的安全，资本就会迅速撤离该经济。

If investors become concerned about the safety of their investments, capital can quickly leave an economy.

- 利率上升，本国货币贬值。

Interest rates increase and the domestic currency

墨西哥的政治不稳定与资本外逃

Political Instability in Mexico and Capital Flight

- 1994 年，当世界各地的投资者观察到墨西哥的政治问题，他们卖掉拥有的部分墨西哥资产，用所得收益购买其他国家的资产。

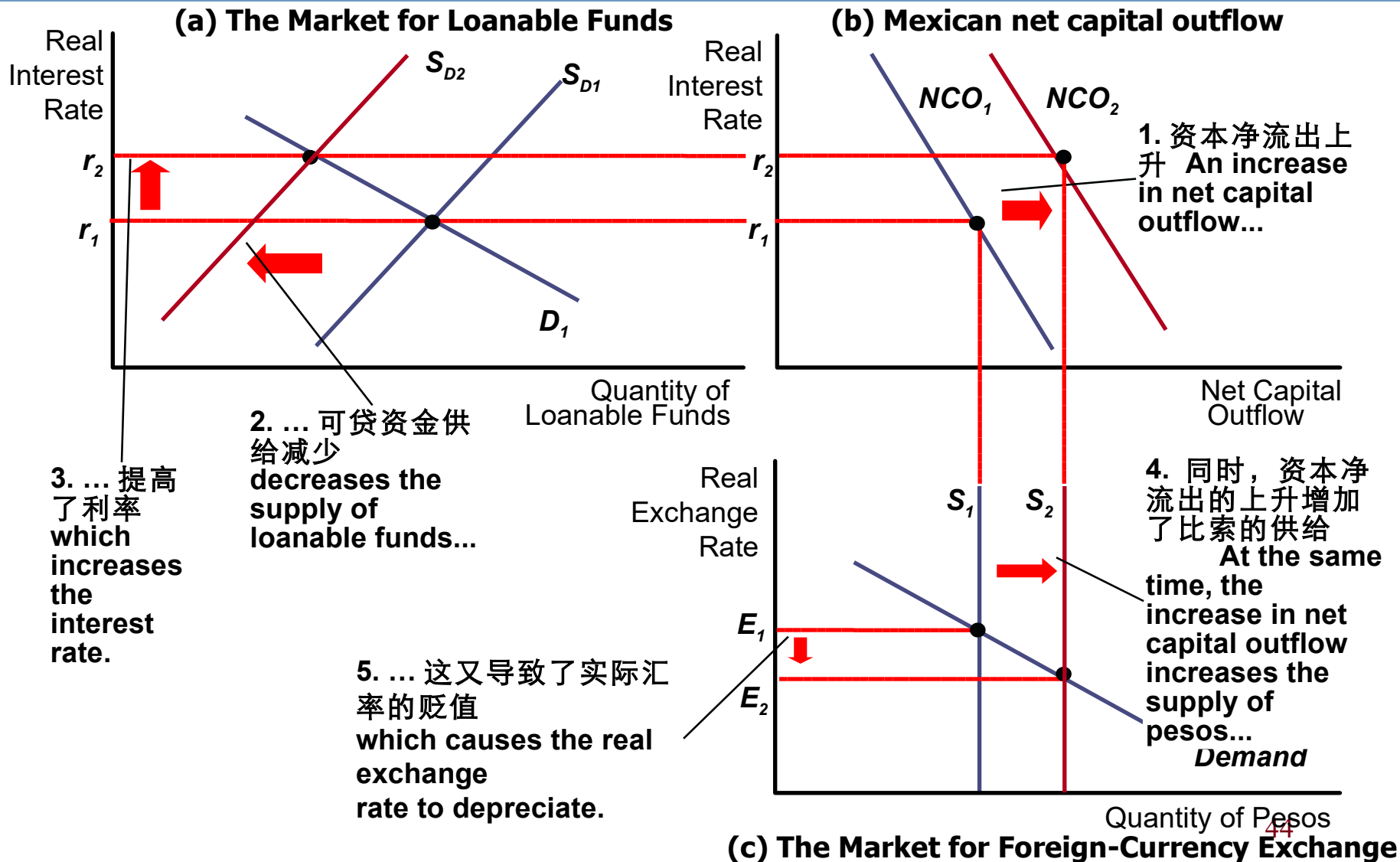
When investors around the world observed political problems in Mexico in 1994, they sold some of their Mexican assets and used the proceeds to buy assets of other countries.

- 这增加了墨西哥人的资本净流出，减少了其国内储蓄。

This increased Mexican net capital outflow, thus decreased its domestic

资本外逃的影响

The Effects of Capital Flight



墨西哥的政治不稳定与资本外逃

Political Instability in Mexico and Capital Flight

- 国内可贷资金市场上可贷资金的供给减少，这引起利率上升。

The supply for loanable funds in the domestic loanable funds market decreased, which increased the interest rate.

- 资本净流出增加使得外汇市场上比索供给上升，这引起汇率下跌。

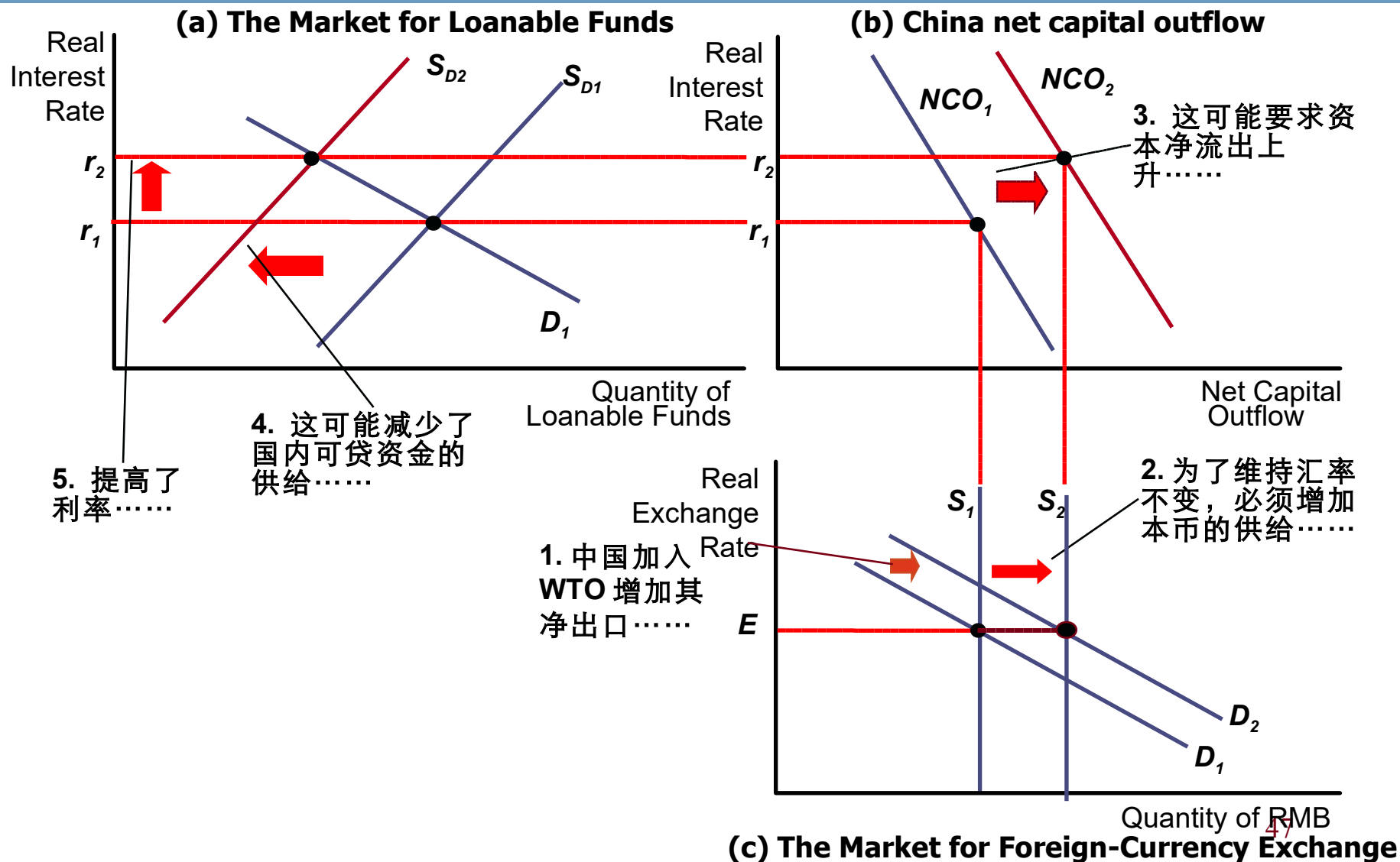
The NCO increase raised the supply of pesos in the foreign-currency exchange market, which decreased the exchange rate.



固定汇率对中国的影响

- 假定中国政府采用了固定汇率制以维持实际汇率不变。
- 当中国的净出口增长时，人民币产生了“升值”压力；政府不得不采取措施以维持汇率不变。
- 问题：相对于允许汇率变动，固定汇率：
 - 是否增加了中国的净出口？
 - 是否增加了美国（中国最大的贸易伙伴）的贸易赤字？

固定汇率对中国的影响



固定汇率对中国的影响

- 为了维持实际汇率，中国必须增加资本净流出（表现为较高的官方外汇储备）；这使得中国对美国的净出口增加。
- 同时，美国的资本净流出减少，使得美国的净出口下降。
- 中国政府维持较低实际汇率的政策确实增加了中美贸易逆差；但这需要通过资本净流出来帮助其实现。
- 美国的国内利率下降，投资增加；中国的国内利率上升，投资减少。

固定汇率对中国的影响

- 是中国政府人为控制实际汇率增加了中美贸易逆差，还是由其他基本力量决定的？
- 另一种可能：
 - 美国人减少储蓄，导致美国国内利率上升，资本净流出减少，实际汇率上升，贸易赤字增加。
 - 中国人增加储蓄，导致中国国内利率下降，资本净流出增加，实际汇率下降、贸易盈余增加。



总结

Summary

- 为了分析开放经济的宏观经济学，两个市场居于中心地位——可贷资金市场与外汇市场。
To analyze the macroeconomics of open economies, two markets are central – the market for loanable funds and the market for foreign-currency exchange.
- 在可贷资金市场，利率调整以平衡可贷资金的供给（来自于国内储蓄）和可贷资金的需求（来自于国内投资）。

In the market for loanable funds, the interest rate adjusts to balance supply for loanable funds (from domestic saving) and demand for loanable funds (from domestic investment).



总结

Summary

- 在外汇市场上，实际汇率调整以平衡美元的供给（来自于资本净流出）与美元的需求（来自于净出口）。

In the market for foreign-currency exchange, the real exchange rate adjusts to balance the supply of dollars (for net capital outflow) and the demand for dollars (for net exports).

- 资本净流出是连接两个市场的变量。

Net capital outflow is the variable that connects the two markets.



总结

Summary

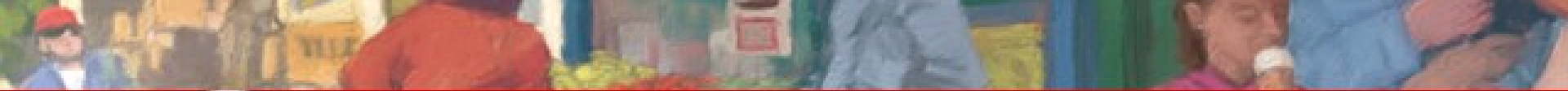
- 减少国民储蓄的政策，例如政府预算赤字，减少了可贷资金供给，抬高了利率。

A policy that reduces national saving, such as a government budget deficit, reduces the supply of loanable funds and drives up the interest rate.

- 更高的利率减少了资本净流出，也就减少了美元的供给。

The higher interest rate reduces net capital outflow, reducing the supply of dollars.

- 美元升值，净出口下降。



总结

Summary

- 贸易限制增加了净出口，也增加了外汇市场上对美元的需求。

A trade restriction increases net exports and increases the demand for dollars in the market for foreign-currency exchange.

- 结果，美元升值，导致国内物品相对国外物品更为昂贵。

As a result, the dollar appreciates in value, making domestic goods more expensive relative to foreign goods.

- 这一升值抵消了贸易限制对净出口最初的影响。
This appreciation offsets the initial impact of the trade restrictions on net exports.



总结

Summary

- 当投资者改变了他们对持有一国资产的态度，对一国经济可能会产生一连串深远的影响。
When investors change their attitudes about holding assets of a country, the ramifications for the country's economy can be profound.
- 一国的政治不稳定可能导致资本出逃。
Political instability in a country can lead to capital flight.
- 资本出逃引起利率上升和一国的通货贬值。
Capital flight tends to increase interest rates and cause the country's currency to depreciate.