

LM07 · ECONOMICS · CFA LEVEL I

Capital Flows and the FX Market

How currencies are quoted, how capital moves across borders, and how regimes anchor (or release) exchange rates

What This Reading Covers

FX is the **largest financial market** by daily transaction value. This module builds the mechanics: **how quotes are read**, how the spot and forward markets are priced, the **eight classes of participants** on the buy side, the spectrum of **exchange rate regimes** (hard pegs through free floats), and how capital flows drive exchange rates in the short run while the balance of payments identity holds over longer horizons.

Learning Outcome Statements

LOS a Describe the foreign exchange market, its functions and participants; distinguish nominal from real exchange rates; calculate and interpret the percentage change in a currency relative to another

LOS b Describe exchange rate regimes and explain the effects of exchange rates on countries' international trade and capital flows

LOS c Describe common objectives of capital restrictions imposed by governments

Exam Tip: The single largest source of confusion on LM07 is **quote direction**. A quote like $USD/EUR = 1.1200$ means **1 EUR costs 1.12 USD**. The bottom ("base") currency is what is being *priced*; the top ("price") currency is what it is priced *in*. Read "/" as "per".

LOS A · FX QUOTE CONVENTIONS

Reading an FX Quote

An exchange rate is the **price of one currency in units of another**. Level I CFA uses the form **price/base** — for example **1.1200 USD/EUR** means each euro costs 1.12 dollars.

ANATOMY OF A QUOTE — USD/EUR = 1.1200

USD / EUR = 1.1200

PRICE (numerator)

What you pay

BASE (denominator)

What you buy (1 unit)

"To buy 1 EUR (base), you pay 1.12 USD (price)."

Read the "/" as "per" — dollars per euro.

Direct vs Indirect Quotes

DIRECT QUOTE

Domestic / Foreign. The price of one unit of foreign currency expressed in domestic currency.

For a US-based investor: USD/EUR = 1.1200 is a direct quote.

INDIRECT QUOTE

Foreign / Domestic. The price of one unit of domestic currency expressed in foreign currency.

Same quote flipped: EUR/USD = 0.8929 is an indirect quote for the US investor.

Common Market Conventions

PAIR	NAME	CONVENTION	MEANING OF "1.0000"
EUR.USD	Euro	USD / EUR	Cost of 1 EUR in USD
GBP.USD	Sterling ("Cable")	USD / GBP	Cost of 1 GBP in USD
AUD.USD	Aussie	USD / AUD	Cost of 1 AUD in USD
NZD.USD	Kiwi	USD / NZD	Cost of 1 NZD in USD
USD.JPY	Dollar-yen	JPY / USD	Cost of 1 USD in JPY

USD.CAD	Loonie	CAD / USD	Cost of 1 USD in CAD
USD.CHF	Swissie	CHF / USD	Cost of 1 USD in CHF

Inverting a Quote

If USD.CAD = 1.3300, then CAD.USD = $1 / 1.3300 = \mathbf{0.7519}$. You can always flip price/base with a reciprocal; the economic meaning is identical.

LOS A · APPRECIATION, DEPRECIATION, REAL RATES

Nominal vs Real — and How to Measure a Move

Nominal vs Real Exchange Rate

NOMINAL

The quoted rate at a point in time — e.g. 1.1200 USD/EUR. Says nothing about purchasing power.

REAL

Adjusts the nominal rate for **inflation differentials** across the two countries vs a base period — reflects actual purchasing power.

Real Exchange Rate Formula (d/f)

$$RealS_{d/f} = NominalS_{d/f} \times (CPI_f / CPI_d)$$

Where d is the domestic (price) currency and f is the foreign (base) currency. A higher real $S_{d/f}$ means it takes more domestic currency to buy the same foreign basket — **domestic purchasing power has declined**.

Percentage Change — Always from the Base Currency's Point of View

A percentage change is interpreted as the appreciation/depreciation of the **base** currency. If USD/EUR rises, the **EUR** (base) has appreciated.

EXAMPLE 1

Percentage Change — USD/EUR (source data)

GIVEN

USD/EUR moves from **1.4560** to **1.4210**.

? FIND

(1) Which currency appreciated? (2) % depreciation of EUR. (3) % appreciation of USD.

SOLUTION→ **SOLUTION**

1 EUR is the base; the quote (USD per EUR) fell, so **EUR depreciated** and USD appreciated.

2 % depreciation of EUR.

$$(1.4210 / 1.4560) - 1 = -2.40\%$$

3 For USD appreciation, flip to EUR/USD.

$$1 / 1.4560 = 0.6868 \rightarrow 1 / 1.4210 = 0.7037$$

$$(0.7037 / 0.6868) - 1 = +2.46\%$$

✓ **ANSWER**

EUR (depreciation) **-2.40%**

USD (appreciation) **+2.46%**

◆ **TAKEAWAY**

The % appreciation in one currency is not equal to the % depreciation in the other. Always convert the quote so the currency you care about is the *base*, then compute $(S_1/S_0) - 1$.

Exam Tip: If a question asks "how much has currency X changed?", make X the **base** currency (flip the quote if needed) before computing the percentage change.

LOS A · SPOT, FORWARD, FORWARD POINTS

Spot vs Forward Quotes

SPOT RATE

Currency exchange rate for **immediate delivery** (typically T+2).

FORWARD RATE

Exchange rate **agreed today** for an exchange to be done on a future date (e.g., 30, 60, 90 days, 1 year).

Market Composition (by daily value)

33%

SPOT MARKET

14%

OUTRIGHT FORWARDS /
FUTURES

53%

FX SWAPS & CURRENCY
SWAPS

FX swap = combined spot + forward transaction. Most volume is in **London**, followed by **New York**. Spot trading peaks 08:00–11:30 NY time.

Reading Forward Quotes — Two Conventions

Forward quotes are given either as **points (pips)** to be added to the spot, or as a **percentage** of the spot.

① Forward points (pips)

A pip is a unit of the rightmost digit of the quote. Add (or subtract) the points × the correct decimal place.

$$Forward = Spot + (points/10^n) \text{ where } n \text{ is the pip's decimal scale}$$

② Forward as percentage

$$Forward = Spot \times (1 +$$

EXAMPLE 2

Forward Points & Percentage (source data)

GIVEN

Spot USD/EUR = **1.4158**. Three-month forward quoted two ways: **+25.3 points** or **+1.787%**.

SOLUTION

→ SOLUTION

1

Points method — last digit is in the 4th decimal, so each pip = 0.0001.

$$1.4158 + 25.3 \times 0.0001 = 1.4158 + 0.00253 = 1.41833 \text{ USD/EUR}$$

2

Percentage method.

$$1.4158 \times (1 + 0.01787) = 1.4411 \text{ USD/EUR}$$

✓ ANSWER

Forward from **+25.3 points**

1.41833

Forward from **+1.787%**

1.4411

Forward Premium vs Forward Discount

FORWARD PREMIUM

Forward > Spot. Market expects the **base currency to appreciate**. The base trades at a premium in the forward market.

FORWARD DISCOUNT

Forward < Spot. Market implies the **base currency will depreciate**. The base trades at a discount.

Covered Interest Rate Parity (no-arbitrage)

The forward premium/discount should reflect the interest rate differential between the two currencies:

$$(1 + r_{price}) = (1 + r_{base}) \times (Forward/Spot)$$

Intuition: you cannot "chase yield across borders" — any excess foreign interest rate is offset by a forward discount on the foreign currency.

LOS A · CROSS RATES & TRIANGULAR ARBITRAGE

Cross Rates From Two Quotes

A **cross rate** is the exchange rate between two currencies *implied* by their individual quotes against a third (usually the USD). Required when no active FX market exists for the pair directly.

Chain-Rule Logic

Line up the quotes so units cancel — the *base* of the first quote should equal the *price* of the next.

$$(A/B) \times (B/C) = A/C$$

If one side is quoted "the wrong way" for this cancellation, take its reciprocal first.

EXAMPLE 3 MXN/EUR Cross Rate (source data)

GIVEN

MXN/USD = 12.1 | USD/EUR = 1.42

? FIND

MXN/EUR — the Mexican peso price of one euro.

SOLUTION

→ SOLUTION

1

Chain-multiply so the USDs cancel.

$$(\text{MXN} / \text{USD}) \times (\text{USD} / \text{EUR}) = \text{MXN} / \text{EUR}$$

2

Plug in.

$$12.1 \times 1.42 = 17.18 \text{ MXN / EUR}$$

✓ ANSWER

17.18 MXN / EUR

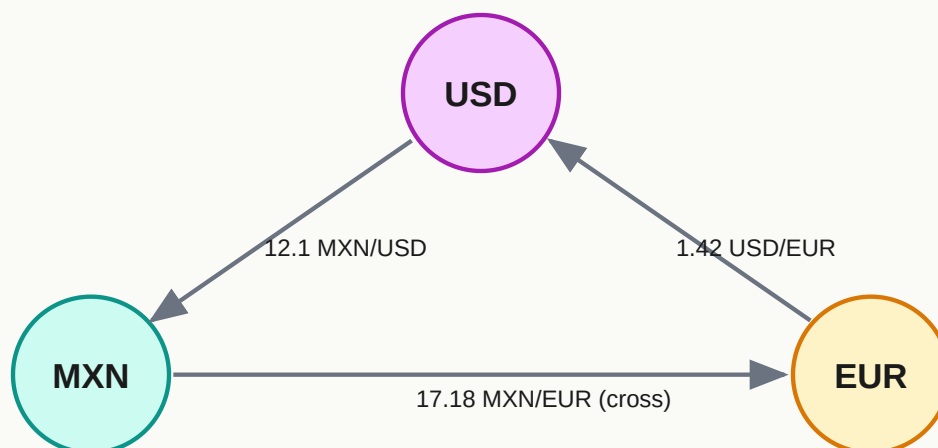
One euro is priced at 17.18 Mexican pesos.

Triangular Arbitrage — The No-Arbitrage Constraint

If the market-quoted MXN/EUR rate differs from the cross rate (17.18), an arbitrageur can profit by trading the three legs in a circle. Competitive trading forces the three rates to satisfy:

$$(USD/MXN) \times (MXN/CHF) \times (CHF/USD) = 1$$

If the product is not 1, go around the triangle in the direction that produces a gain until the triangle closes.

THE TRIANGULAR ARBITRAGE TRIANGLE

QUIZ 1 · CHECKPOINT

Test Your Understanding: Quotes, % Change & Cross Rates

Q1. A quote of USD/EUR = 1.1200 is *best* interpreted as:

Q2. USD/EUR moves from 1.2500 to 1.3000. Which statement is *most accurate*?

Q3. Given MXN/USD = 12.1 and USD/EUR = 1.42, the MXN/EUR cross rate is *closest to*:

Q4. Spot USD/EUR = 1.4158 and the 3-month forward is quoted at +25.3 *points* (each point = 0.0001).
The forward rate is *closest to*:

Q5. If the 6-month forward USD/EUR is *greater* than the spot USD/EUR, the EUR is trading at a:

LOS A · FX MARKET PARTICIPANTS

Who Trades in the FX Market

FX participants divide into a small **sell side** (the dealing banks) and a large, heterogeneous **buy side**. The wide variety of motives — hedging, speculating, reserve management, policy — is one reason FX rates are hard to predict.

Sell Side

FX Dealing Banks — only the largest, first-tier global banks. They make markets, carry inventory, and earn the bid-ask spread. Smaller banks, corporates, funds, and retail all transact *through* these dealers.

Buy Side — Eight Categories

PARTICIPANT	ROLE & MOTIVE
1. Retail accounts	Non-professional individuals, typically spot market transactions (tourism, remittances, online trading).
2. Corporate accounts (commercial)	Multinationals with revenues/expenses or borrowings in foreign currencies. Primarily hedging business cash flows.
3. Interbank (through dealers)	Smaller banks transacting through the first-tier dealing banks for client needs and liquidity management.
4. Real money accounts	Institutional funds — pensions, endowments, insurance, mutual funds . Hedge or leave unhedged foreign-currency positions; only <i>limited active trading</i> .
5. Leveraged accounts	Hedge funds, proprietary trading desks . Treat FX as an asset class; engage in <i>active trading</i> and speculation.
6. Governments	Transactional flows tied to policy goals (aid, procurement, debt service).
7. Central banks (reserve managers)	Market intervention and managing the nation's foreign currency reserves. For pegged regimes, buy/sell reserves to defend the peg.
8. Sovereign wealth funds	Run by countries with large current-account surpluses. Investment mandate — hedging and some active positions.

Hedgers vs Speculators

HEDGERS

Enter FX transactions that **decrease** an existing currency exposure. Motive: stability of cash flows.

SPECULATORS

Enter FX transactions that **increase** currency exposure. Motive: profit from expected rate moves.

Exam Tip: Speculation and hedging flows **far exceed** the trade-related FX flows, so capital-account transactions dominate exchange-rate movements in the short run.

LOS A · FUNCTIONS OF THE FX MARKET

What the FX Market Does

FOUR ECONOMIC FUNCTIONS OF THE FX MARKET

CONVERSION

Convert funds for cross-border trade and investment

HEDGING

Transfer FX risk via spot & forward markets and swaps

SPECULATION

Treat FX as an asset class for alpha generation

POLICY & RESERVES

Central bank intervention & reserve management

Why These Functions Matter

- 1 **Currency conversion** for international trade (exports/imports) and cross-border investment (FDI, portfolio flows).
- 2 **Hedging** — corporates, real money, and sovereigns use spot, forwards, futures, and currency swaps to eliminate or reduce FX exposures on existing exposures.
- 3 **Speculation / investment** — leveraged accounts and SWFs take active FX positions to generate returns, treating FX as an asset class.
- 4 **Policy implementation & reserve management** — central banks defend pegs, smooth volatility, and manage the composition of national reserves.

Where & When the FX Market Operates

The FX market is **24-hour** and **decentralized**, moving geographically through trading centers as the sun rises across the globe.

- Largest share of volume: **London**, followed by **New York**
- Spot market is most active **08:00–11:30 NY time** (London–NY overlap)
- Dominant reserve currencies: **USD and EUR**; secondary reserves: GBP, JPY, CHF

LOS B · EXCHANGE RATE REGIMES

The Spectrum of Exchange Rate Regimes

The Ideal-Regime Trilemma

An ideal currency regime would simultaneously provide (1) a credibly fixed rate, (2) full convertibility, and (3) fully independent monetary policy. **You cannot have all three** — (1) + (2) negates (3); full monetary independence negates (1) or (2).

REGIMES RANKED BY RIGIDITY OF THE RATE (LEAST → MOST FLEXIBLE)

Dollarization no currency	Monetary Union Eurozone	Currency Board HKD/USD	Fixed Parity ±1%	Target Zone ±2%	Crawling Peg adjusting	Managed Float dirty float	Free Float market
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Hard Pegs — No Own Currency / No Independent Policy

FORMAL DOLLARIZATION

The country **uses another nation's currency** as its unit of exchange and medium of account (typically USD or EUR).

- *Gains*: inherits the anchor currency's credibility, promotes fiscal discipline
- *Gives up*: monetary policy; does **not** inherit the creditworthiness of the anchor country

MONETARY UNION

A group of countries **share a common currency** (e.g. the Eurozone / EUR). Each member loses ability to run independent monetary policy; common currency does not guarantee creditworthiness of individual members (2010 Eurozone Sovereign Debt Crisis).

CURRENCY BOARD SYSTEM (CBS)

An **explicit legislative commitment** to exchange domestic currency for a specified foreign currency at a fixed rate, with the entire monetary base **fully backed** by reserves of that foreign currency (e.g., HKD/USD).

- Expansion/contraction of the domestic monetary base is *directly* tied to trade and capital flows

- Outflows $\Rightarrow$ contracting money base $\Rightarrow$ rising domestic interest rates (automatic adjustment)
- Loss of domestic monetary policy; adopts overseas inflation; no lender of last resort

Soft Pegs — Own Currency but Constrained

FIXED PARITY (CONVENTIONAL PEG)

Commitment to maintain a fixed rate against a single currency or a basket (usually $\pm 1\%$ band). Unlike a CBS, the peg is **not legislated** and reserves are **discretionary**; central bank intervenes by buying/selling reserves or adjusting interest rates. Domestic monetary policy is constrained; credibility linked to FX reserves.

TARGET ZONE

Fixed parity with **wider bands** ($\pm 2\%$). Wider bands give monetary authority more discretion.

CRAWLING PEG — ACTIVE OR PASSIVE

Passive: parity regularly adjusted (daily/weekly) in response to *past* domestic inflation. **Active:** adjustments pre-announced in small steps for *future* periods to set inflation expectations.

FIXED PARITY WITH CRAWLING BANDS

Start with a peg to anchor inflation expectations; gradually widen the $\pm\%$ band over time to allow more discretionary monetary policy and a smooth exit from the peg.

MANAGED FLOAT ("DIRTY FLOAT")

No preannounced target. Authority intervenes in response to **policy indicators** — trade balance, inflation, or employment — without a specific target rate.

Free Float

INDEPENDENTLY FLOATING RATES

Exchange rate is **market determined**. The central bank has **full control** of monetary policy, focused on domestic inflation and unemployment. Major floaters: USD, EUR, GBP, JPY, CAD, AUD, CHF. Central banks may intervene infrequently only to dampen extreme volatility.

LOS B · FX EFFECTS ON TRADE & CAPITAL FLOWS

How Exchange Rates Feed Back to Trade & Capital

Exchange rate movements affect both the **current account** (trade flows) and the **capital account** (investment flows). Because trade adjusts slowly, capital flows dominate short-to-medium-term exchange rate movements.

Balance of Payments Identity

From the national income identity, with C = consumption, S = private saving, T = taxes, I = investment, G = government spending, X = exports, M = imports:

$$C + S + T = C + I + G + (X - M) \rightarrow (X - M) = (S - I) + (T - G)$$

$(X - M)$

Trade balance (current account)

$(S - I)$

Net private savings

$(T - G)$

Government fiscal balance

A **current-account deficit** (imports > exports) *must* be financed by a **capital-account surplus** (the country borrows abroad or sells assets to foreigners). A surplus country lends or buys foreign assets.

Currency Movements Affect Trade

MOVE	EXPORTS	IMPORTS	TRADE BALANCE EFFECT
Domestic currency depreciates	Foreign buyers pay less → exports ↑	Foreign goods cost more → imports ↓	Tends to improve (eventually)
Domestic currency appreciates	Foreign buyers pay more → exports ↓	Foreign goods cheaper → imports ↑	Tends to worsen

Capital Flows Dominate in the Short Run

Capital flows adjust much more rapidly than savings or goods prices. Because trade adjusts slowly, any change in the FX rate is met by a change in asset prices — so capital flows are the **primary determinants of FX-rate movements in the short to intermediate term.**

In fixed-rate regimes, the adjustment instead happens through **interest rates** — capital outflow forces rates up, capital inflow pulls rates down.

Current-Account Deficit — Driver Matters

A current-account deficit can reflect either:

- **High investment** (productive capacity increases) — may be sustainable
- **Low savings** (high consumption or large fiscal deficit) — weaker longer-term outlook

LOS B · J-CURVE & MARSHALL-LERNER

The J-Curve Effect

Immediately after a currency depreciation, the trade balance often *worsens* before it improves — producing a trajectory shaped like the letter **J**. The short-run deterioration comes from existing trade contracts priced in foreign currency; the long-run improvement comes from volume adjustments.

THE J-CURVE — TRADE BALANCE RESPONSE TO A DEPRECIATION AT $T = 0$



Why the J Shape?

- 1 **Short run:** existing contracts are already priced; quantities (volume of exports and imports) are sticky. A weaker currency makes the same *volume* of imports cost more in domestic currency $\Rightarrow$ the trade balance worsens first.
- 2 **Medium run:** higher import prices and cheaper exports begin shifting consumption patterns.
- 3 **Long run:** export volumes rise, import volumes fall — the trade balance improves beyond its starting point (provided demand is sufficiently elastic).

The Marshall-Lerner Condition

A currency depreciation will **improve the trade balance** if and only if the absolute sum of the demand elasticities is greater than one:

$$|\varepsilon_X| + |\varepsilon_M| > 1$$

Where ϵ_X is the price-elasticity of demand for exports and ϵ_M is the price-elasticity of demand for imports. If this condition fails, a depreciation worsens the trade balance (no final upturn in the J).

Exam Tip: Link the three ideas: a currency depreciation *may* improve trade (Marshall-Lerner); the adjustment is *not immediate* (J-curve). In the very short run, valuation effects dominate volume effects.

QUIZ 2 · CHECKPOINT

Test Your Understanding: Participants, Regimes, Trade

Q6. Which FX market participant is *most likely* to be categorized as a *leveraged account*?

Q7. A country operates a *currency board*. Which statement is *most accurate*?

Q8. Ordered from *least* to *most* flexible, the correct sequence of regimes is:

Q9. Following a depreciation, a country's trade balance *initially* worsens and only later improves. This pattern is known as the:

Q10. According to the *Marshall-Lerner* condition, a currency depreciation will improve the trade balance if:

Q11. Which identity *must* hold for any country's balance of payments?

LOS C · CAPITAL RESTRICTIONS

Objectives of Capital Restrictions

Capital restrictions are **policies that limit or redirect capital flows** across borders — inward or outward. They are imposed to meet specific policy objectives, at the cost of lowering long-run welfare.

Inward vs Outward Restrictions

INWARD (CAPITAL INFLOWS)

- Limit how much foreigners can invest
- Restrict investment in certain industries (strategic, defense)
- Prevent "hot money" flows — may permit FDI
- Protect domestic financial markets

OUTWARD (CAPITAL OUTFLOWS)

- Limits on repatriation of capital or income
- Restrict outflows of wealth
- Prevent **capital flight** — forces capital into domestic assets
- Facilitate taxation of wealth & income

Common Policy Objectives

- 1 **Reduce volatility** of capital inflows and outflows (and therefore of domestic asset prices).
- 2 **Maintain fixed exchange rates** — reduce the pressure on pegged currencies from speculative flows.
- 3 **Keep domestic interest rates low** — insulate domestic rates from global capital mobility.
- 4 **Protect strategic industries** from foreign ownership (national security, technology, defense).
- 5 Give the central bank **monetary policy independence** from exchange rate considerations.
- 6 Pursue other policy goals — **employment, regional development, tax enforcement**.

Long-Run Welfare Trade-off

Capital restrictions **reduce economic welfare over the long term** because they prevent capital from seeking its highest-return use, reduce competition, and limit diversification. They *can* protect developing economies from large foreign-capital swings.

SYNTHESIS · FORMULA & CONCEPT REFRESHER

LM07 Formula & Concept Refresher

Core Formulas

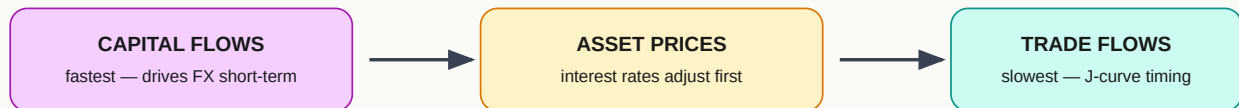
CONCEPT	FORMULA
% change of base	$(S_1 / S_0) - 1$
Invert a quote	$S_{B/A} = 1 / S_{A/B}$
Real exchange rate	Real $S_{d/f} = \text{Nominal } S_{d/f} \times (\text{CPI}_f / \text{CPI}_d)$
Cross rate (chain rule)	$(A/B) \times (B/C) = A/C$
Forward from points	Forward = Spot + (points $\times$ decimal-value of last digit)
Forward from %	Forward = Spot $\times$ (1 + %)
Forward premium / discount	$(\text{Forward} / \text{Spot}) - 1$
Covered interest parity	$(1 + r_{\text{price}}) = (1 + r_{\text{base}}) \times (F / S)$
Balance of payments identity	$(X - M) = (S - I) + (T - G)$
Marshall-Lerner condition	$ \varepsilon_X + \varepsilon_M > 1$

Quick Vocabulary

Pip (point)	Unit of the rightmost digit of a quote (e.g., 0.0001 in 1.4158)
Spot	Rate for immediate delivery (T+2)
FX swap	Combined spot + forward transaction (largest volume share)
Real money	Institutional funds (pensions, endowments, insurance, mutual funds) — limited active trading
Leveraged account	Hedge funds and prop trading desks — active FX speculation
Dollarization	Using another country's currency as the domestic unit of account
Currency Board	Legislated peg; domestic base fully backed by foreign reserves
Fixed parity	Peg to a currency or basket, usually $\pm 1\%$ band, reserves discretionary
Target zone	Peg with wider $\pm 2\%$ band

Crawling peg	Parity adjusted periodically (active = pre-announced; passive = reactive)
Managed (dirty) float	No target rate; intervene in response to indicators
Independent float	Market-determined; full monetary independence
Capital flight	Large, sudden outflow of capital — a main target of outward capital restrictions

Timing Hierarchy of Adjustment



QUIZ 3 · CHECKPOINT

Test Your Understanding: Synthesis

Q12. USD/EUR spot = 1.4158. The 3-month forward is quoted at +1.787%. The 3-month forward is *closest to*:

Q13. Which of the following is *least likely* a common objective of capital restrictions?

Q14. Nominal USD/EUR rose 10% over a year. Over the same period, US CPI rose 2% and Euro-area CPI rose 5%. The change in the *real* USD/EUR rate is *closest to*:

Q15. Under a system of *freely floating* exchange rates, the central bank:

Q16. A country's currency depreciates by 10%. If the sum of the absolute values of its import and export demand elasticities is 0.8, the trade balance in the medium term is *most likely* to:

MODULE COMPLETE

Your Scorecard

0 / 16

LM07 Key Takeaways — Exam-Ready Cheat Sheet

Quotes & Calculations

- 1 **Quote convention:** price / base. USD/EUR = 1.12 means 1 EUR costs 1.12 USD. Read "/" as "per".
- 2 **% change is from the base currency's perspective.** $(S_1/S_0) - 1$. To measure the other currency's move, flip the quote first.
- 3 **% appreciation $\neq$ % depreciation** — the two figures are not equal and opposite.
- 4 **Real rate:** Real $S_{d/f} = \text{Nominal} \times \text{CPI}_f/\text{CPI}_d$. Adjusts for inflation differentials.
- 5 **Cross rates:** chain-multiply so the middle currency cancels. Triangular arbitrage ensures the quoted rate equals the implied cross.

Spot, Forward & CIRP

- 6 **Spot** = immediate delivery. **Forward** = future exchange agreed today. FX swaps are spot + forward combined and are the largest share of FX volume (~53%).
- 7 **Forward from points:** add points $\times$ last-digit decimal value. **Forward from %:** Spot $\times (1 + \%)$.
- 8 **Forward > Spot** = base trades at premium (and price-currency rate > base-currency rate per CIRP).

Participants & Regimes

- 9 **Buy side:** retail, corporate (commercial), interbank (smaller banks), real money, leveraged, reserve managers, central banks, sovereign wealth, governments. **Sell side:** first-tier global dealing banks.

- 10 **Hard pegs:** dollarization, monetary union, currency board. **Soft pegs:** fixed parity ($\pm 1\%$), target zone ($\pm 2\%$), crawling peg, crawling bands, managed float. **Free float:** market-determined.
- 11 **Trilemma:** cannot have fixed rate + full convertibility + independent monetary policy simultaneously.

Trade, Capital Flows & Restrictions

- 12 **BoP identity:** $(X - M) = (S - I) + (T - G)$. Current-account deficit mirrored by capital-account surplus.
- 13 **Capital flows are the primary driver** of FX moves in the short-to-medium term — they adjust faster than trade flows.
- 14 **J-curve:** trade balance first worsens after depreciation, then improves. **Marshall-Lerner:** improvement requires $|\epsilon_X| + |\epsilon_M| > 1$.
- 15 **Capital restrictions (inward/outward)** aim to reduce volatility, maintain pegs, keep rates low, protect strategic industries, and enable tax enforcement — but reduce long-run welfare.

Last-Minute Exam Checklist

% change: $(S_1/S_0) - 1$ — from base currency view

Real rate: $\text{Nominal} \times \text{CPI}_f/\text{CPI}_d$

Forward points: add to spot after scaling by decimal value

CIRP: $(1 + r_{\text{price}}) = (1 + r_{\text{base}}) \times F/S$

BoP: $(X - M) = (S - I) + (T - G)$

Marshall-Lerner: $|\epsilon_X| + |\epsilon_M| > 1$

Regime rigidity: Dollarization → CBS → Fixed parity → Target zone → Crawling peg → Managed float → Free float