



Foreign Exchange **Essentials**

What Is FX

FX (Foreign Exchange) is the conversion of one currency to another.

Sell domestic currency

Buy domestic currency



Exchange Rate

The price at which one currency is converted into another.

Buy foreign currency

Sell foreign currency

Most Liquid Market

FX market is the deepest and the most liquid market in the world.



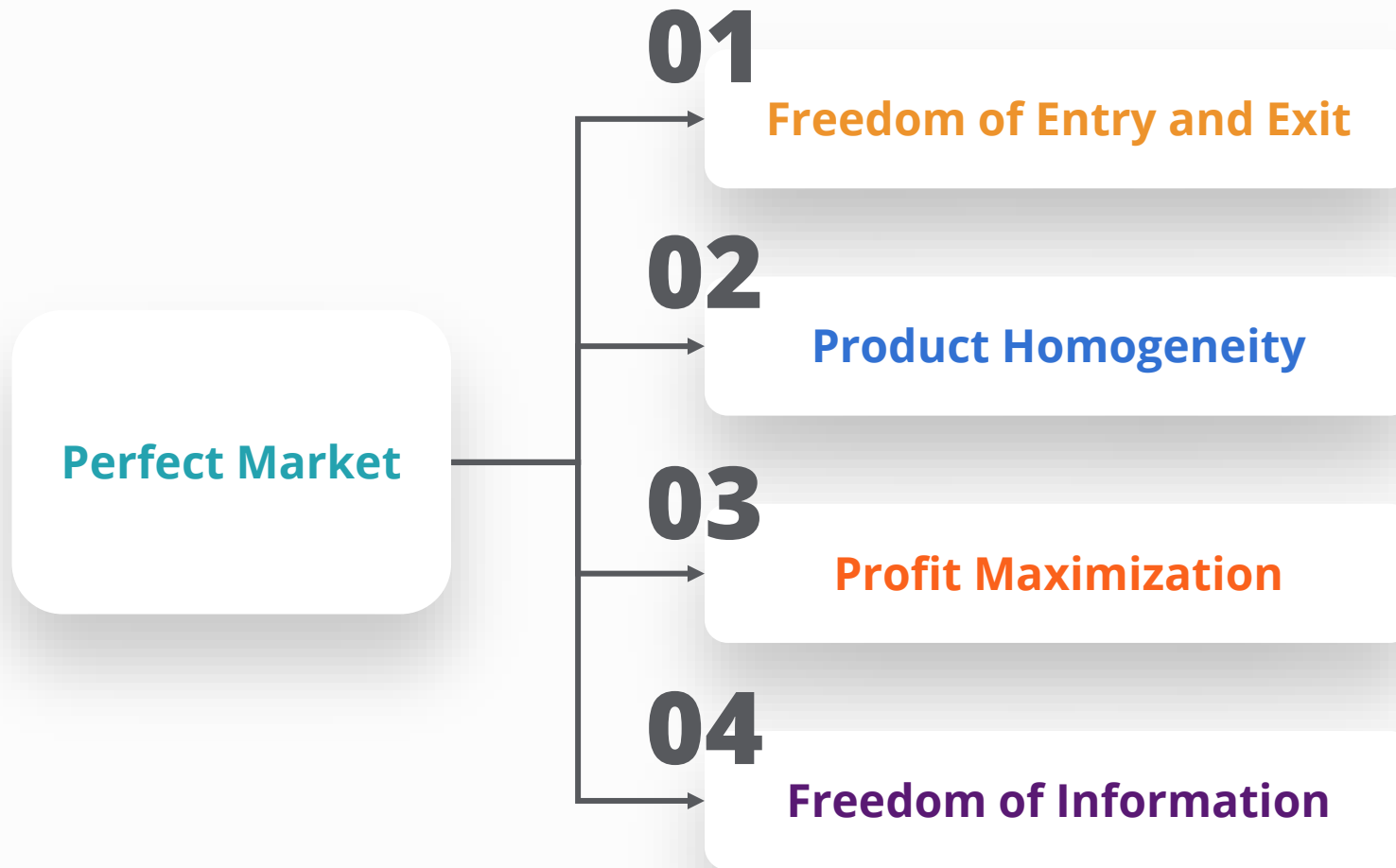
Average daily trading volume exceeded **\$6.6 trillion USD equivalent a day in 2019.**



Very deep market – can easily absorb **\$1 billion USD equivalent trades** (called a "yard").

Source: Bank for International Settlement. (2019). *Triennial Central Bank Survey - Global foreign exchange market turnover in 2019*. Retrieved from https://www.bis.org/statistics/rpfx19_fx_annex.pdf

Perfect Market





Foreign Exchange **History**

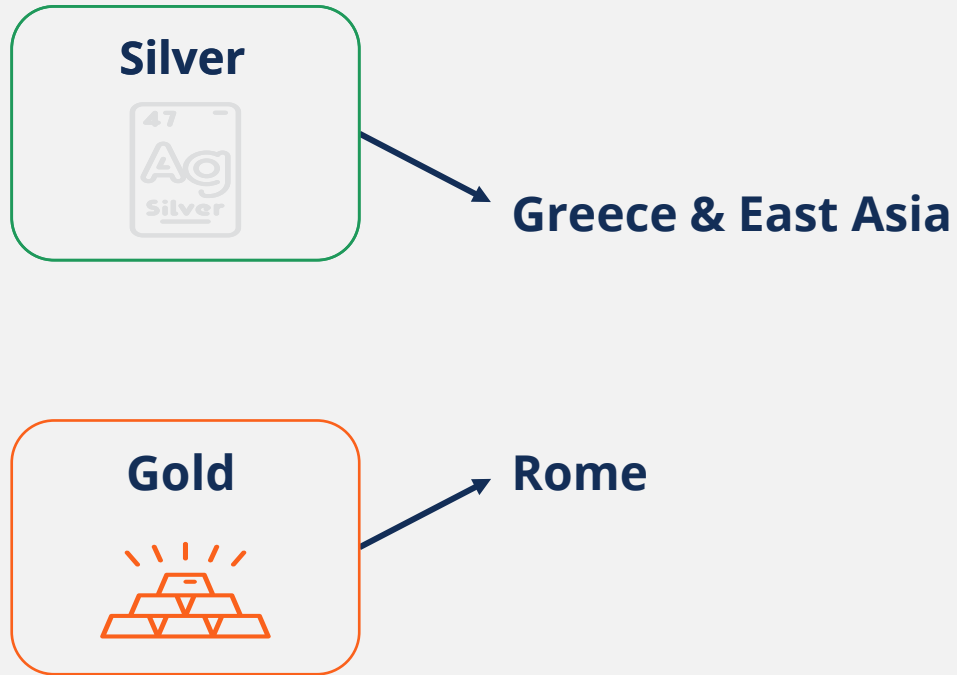
History of FX Markets

Foreign exchange markets were developed to overcome inefficiencies with the barter system (allowing inter-jurisdictional trade).



Gold and Silver

These markets focused on products that held equal value in both jurisdictions, notably **gold** and **silver**. The preference between gold and silver was normally a function of a metal's **domestic availability** and **production**.



Exchange of Coinage

The exchange of coinage would be assessed on **weight** and **purity** to establish an **exchange rate**. Traders would be mindful to ensure that coins contained the **correct amount** of silver and were not adulterated with **other metals of lesser value**.



Debasement Methods

Debasement Methods

Clipping

Sides of a coin are clipped off.



Sweating

Coins are shaken in a bag to collect the dust and loose metal.



Plugging

A hole is punctured in a coin and then hammered flat until the hole is filled.



The Great Debasement

Debasement could be enacted by **monetary authorities**.

Henry VIII

- Excessive public deficits
- “The Great Debasement”



23 carats



20 carats



92.5%



25%



Debasement Risks

- Due to debasement risks, FX prices were based more on the **precious metal content** of the coins.

Fiat Money and Gold Standard

Fiat Money

- Government-issued money (banknotes and coins), which has no intrinsic value
- Depends on the perception of the issue
- Less confidence with inflation, excessive deficits, and war



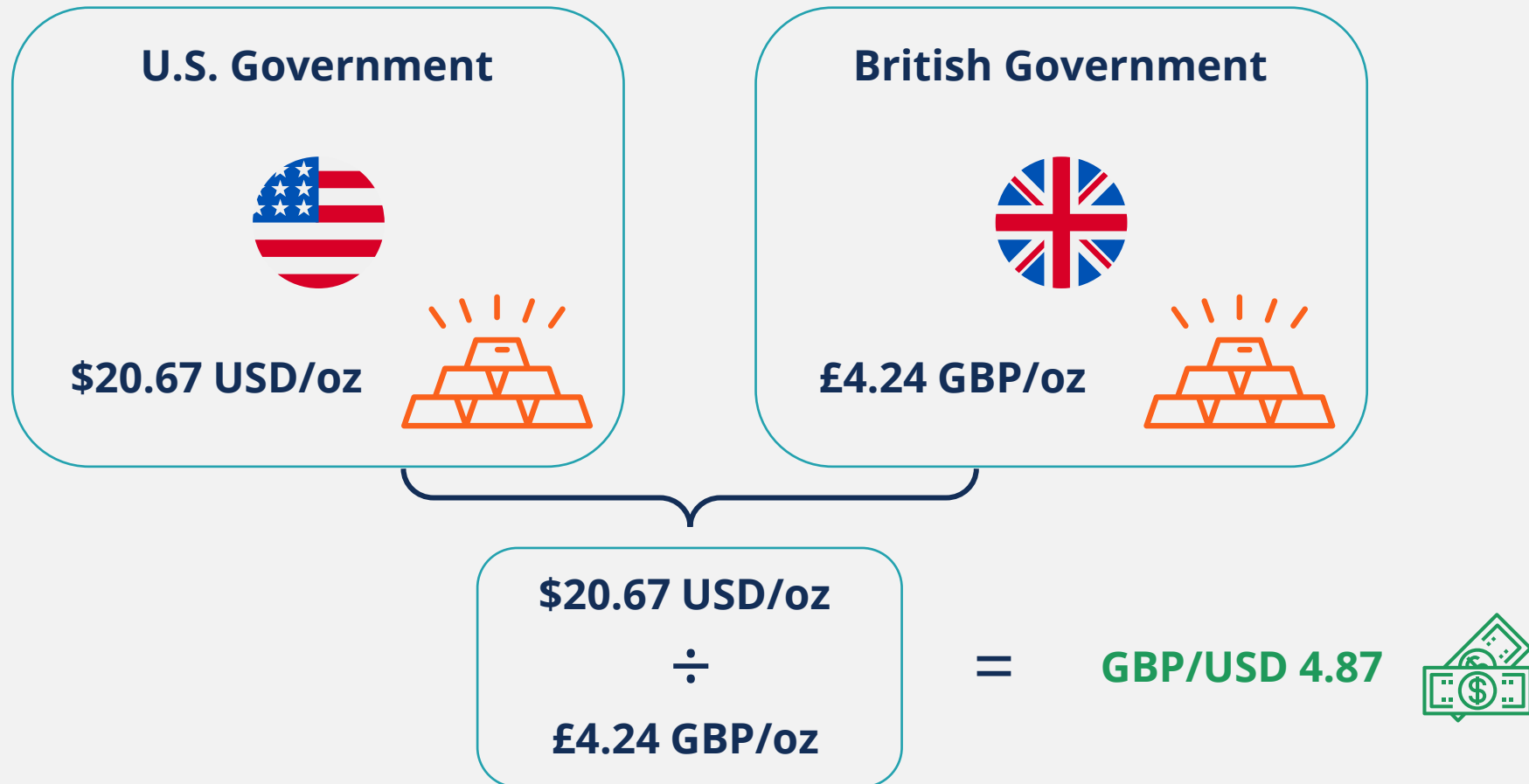
Gold Standard

- British Government-issued notes, which were freely and fully convertible into gold on demand
- Eventually, only a portion of the note issuance was backed by gold (more currency in circulation)
- Widespread usage across large industrial nations



The Gold Standard

With domestic currencies **fixed against the price of gold**, it is possible to determine the **relative** value of currencies, thereby creating an **exchange rate**.



The Gold Standard: Conversion

1 GBP =

U.S. Dollars



GBP/USD 4.87

Canadian Dollars



GBP/CAD 4.87

Dutch Guilders



GBP/NLG 12.11

French Francs



GBP/FRF 25.22

German Marks



GBP/DEM 20.43

**Austro-Hungarian
Krones**



GBP/AHK 24.02

Global money supply expands at the rate of gold production.

01 **Periods of global inflation**

02 **Periods of global deflation**



01 Periods of global inflation

02 Periods of global deflation



The Gold Standard Continued

After the First World War, the **international monetary system** limped on.

Initially, nations prevented the free exchange of foreign currency

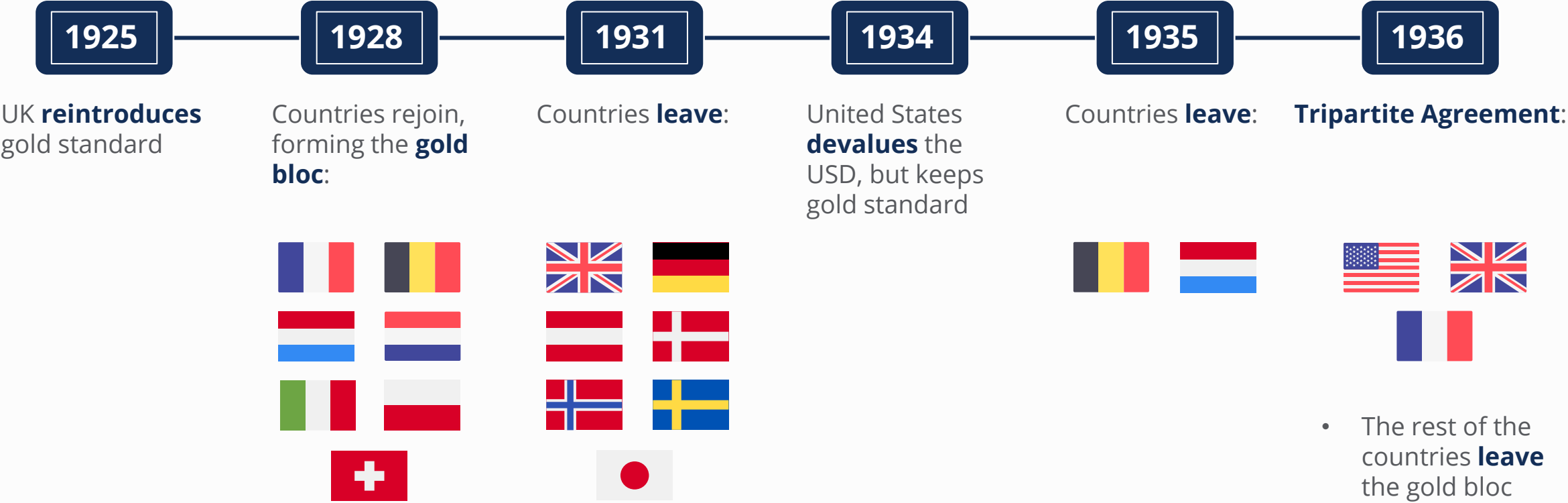


Eventually **returned** to the gold standard.

Weak Economies

- Gold continued to flow out
- Domestic money supply shrunk
- Deflationary effects lowered economic growth

The Gold Standard Timeline



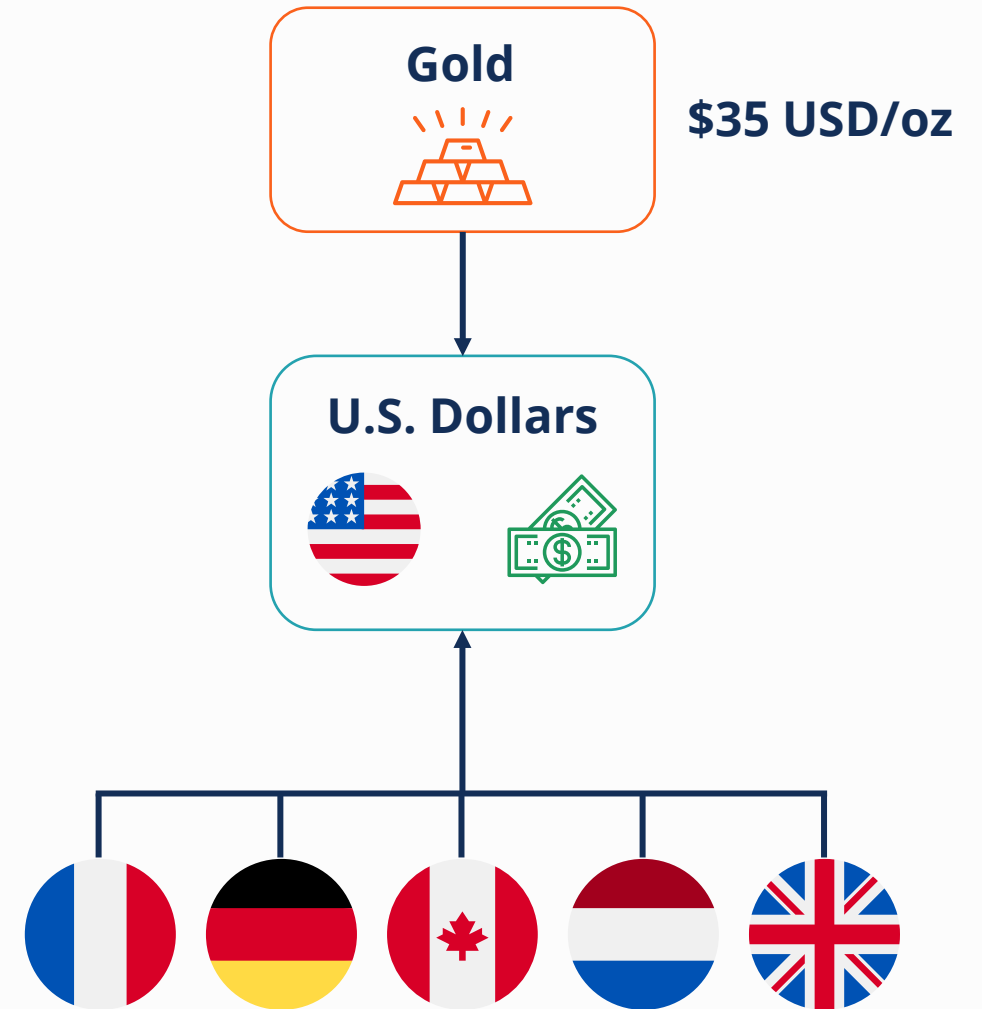
Bretton Woods

Bretton Woods Conference (1944)

- New Hampshire, USA
- The allied nations designed a new international monetary order that would replace the pre-war gold standard

Expectations

- Domestic currencies can fluctuate up to 1%
- Nations expected to maintain the exchange rate through domestic economic policies
- Balance of payment deficits: contract the economy
- Balance of payment surpluses: expand the economy



Bretton Woods: Drawbacks



Balance of Payment Surpluses

Nations **failed to expand** their economies and preferred to **hoard** as much gold as possible.



Balance of Payment Deficits

Nations found it **difficult to contract** their economies.

More frequent forced **devaluations**, compared with few **revaluations**.

Bretton Woods: Drawbacks

Similar to the gold standard, the annual **increase** in the **global money supply** was **dependent** on annual **gold production**.



U.S. Dollar supply increases through **government deficits** added to the **international money supply**.



Deficits became so **large** that they undermined the **international monetary order**.



Bretton Woods system **ended in 1971** when **President Nixon** took “the dollar off gold.”



Exchange Rate **Regimes**

Free Float

- ❑❑ A free float is an exchange rate regime where a domestic currency can be traded without any
- ❑❑ limitations or influence from the monetary authorities.

Freely floated exchange rate allows **the market to determine** the external value of a domestic value.

Governments and central banks **do not use interest rates or direct intervention** to influence FX rates.

Currency value is derived **purely from market demand and supply**.



Managed Float (Dirty)

- ❑ A managed dirty float is where monetary authorities regularly intervene in FX markets to influence price movements to achieve its own undisclosed policy objectives.

Authorities may **make public statements** to influence the market's view on currency movements.

Central bank may influence rates through **interest rate changes** or **open market operations**.

Governments may instruct domestic companies to purchase or sell foreign currency in the market.



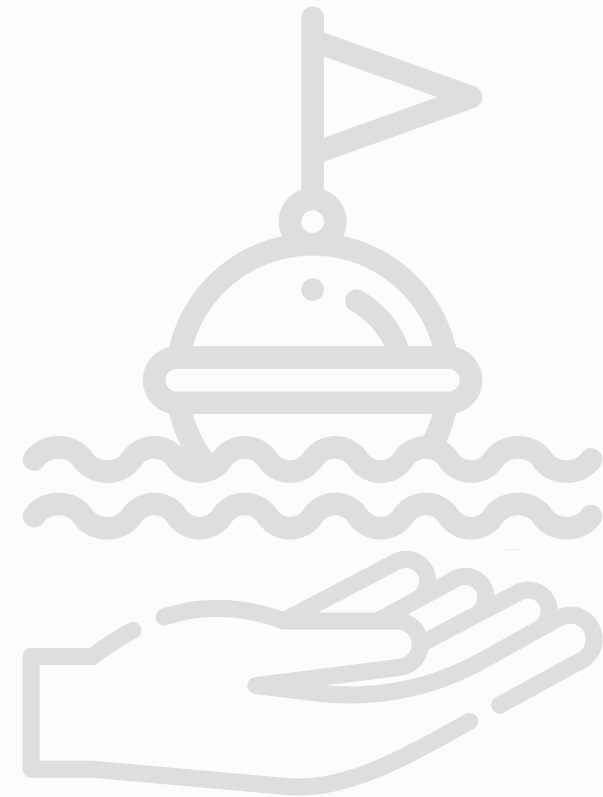
Managed Float (Transparent)

- ❑ A managed transparent float is where authorities announce any interventions in the marketplace,
- ❑ along with the monetary tools used.

Compared to a dirty float, monetary authorities are **more active and transparent** in their market interventions.

Announce preferred pricing parameters such as limiting daily volatility or absolute price levels.

Use similar methods of market intervention, **including formal restrictions** on currency trading.



Pegged/Fixed Exchange Rate

- □ A pegged or fixed exchange rate is where the value of one currency's price is fixed in relation to
- □ another currency.

There may be provisions provided for price movements around the fixed value.

Exchange rate maintenance **requires rigorous use of monetary tools** (interest rate and direct intervention).

Capital controls can be utilized but must be balanced against **implications for trade and investment**.



Crawling Peg

- ❑❑ A crawling peg would allow a currency to be fixed to another currency for a period but acknowledge
- ❑❑ that the peg would be adjusted over time.

Allows a currency to be fixed to another currency, acknowledging an adjustment to the peg over time.

For example, exchange rate would **depreciate by 1% per annum**, providing a “**pegged pathway**”.

Gives monetary authorities **more credibility** when markets feel an **absolute peg cannot be maintained**.



Currency Basket

- □ A currency basket is an exchange rate regime whereby the monetary authority decides to peg its
- □ currency to a mix of currencies with different weightings.

Currency mix and weighting of a currency basket can be disclosed or undisclosed.

Examples of **disclosed** currency baskets would be the **ECU and Special Drawing Rights (SDRs)**.

Examples of **undisclosed or partially disclosed** countries are **Singapore (SGD) and China (RMB)**.



Currency Basket (Disclosed)

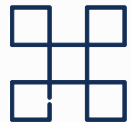
- □ A currency basket is an exchange rate regime whereby the monetary authority decides to peg its
- □ currency to a mix of currencies with different weightings.

**Example of the ECU*:
Sept. 21, 1989 to Dec. 31, 1999**

***ECU = European Currency Unit**

	Value	Weight
Belgian Francs	3.301	8.183%
German Marks	0.6242	31.915%
Danish Kroner	0.1976	2.653%
Spanish Peseta	6.885	4.138%
French Francs	1.332	20.306%
British Pounds	0.08784	12.452%
Greek Drachmas	1.44	0.437%
Irish Punt	0.008552	1.086%
Italian Lira	151.8	7.840%
Luxembourg Francs	0.13	0.322%
Dutch Guilders	0.2198	9.87%
Portuguese Escudos	1.393	0.695%

Currency Basket (Undisclosed)

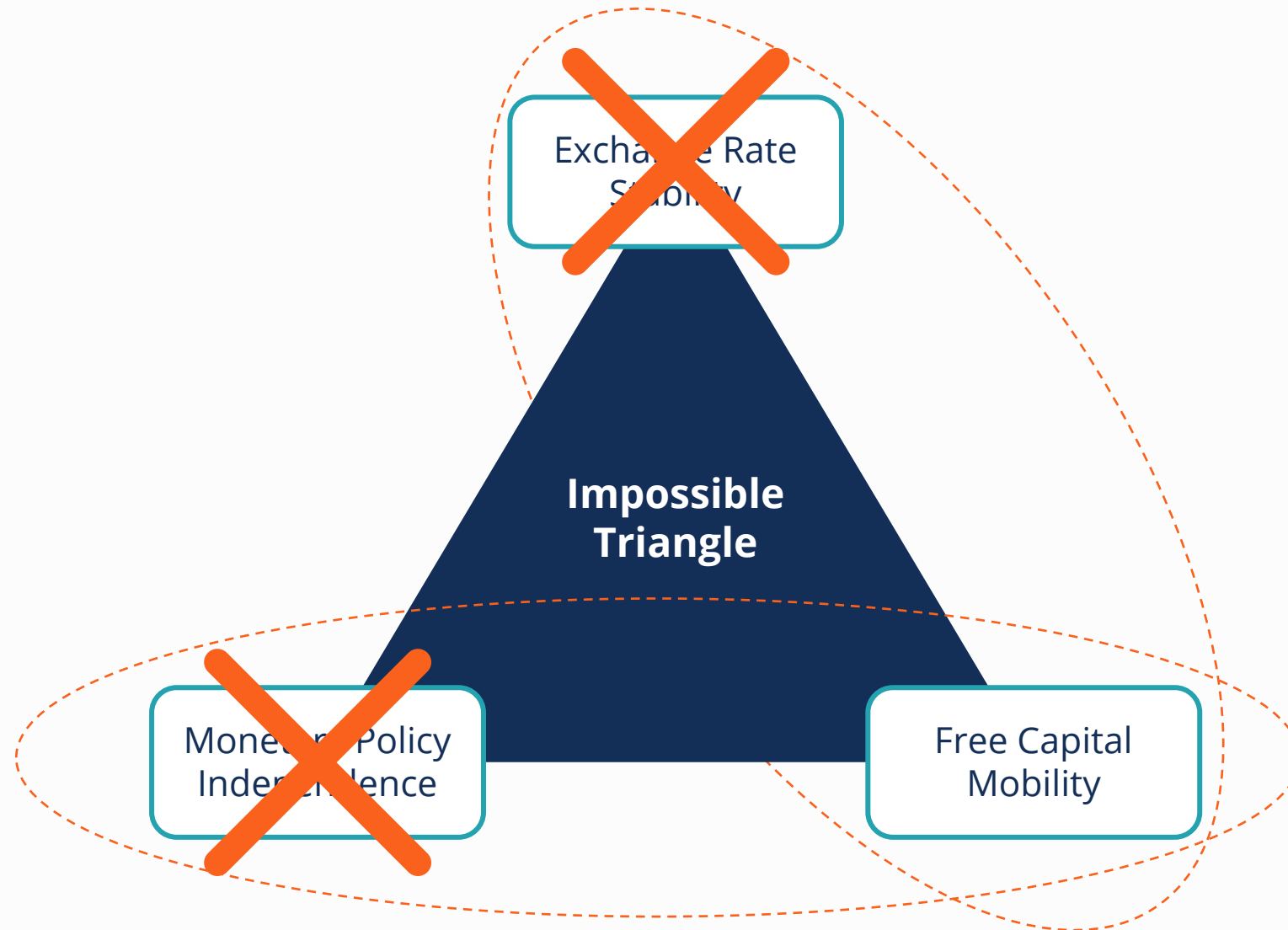
 A currency basket is an exchange rate regime whereby the monetary authority decides to peg its currency to a mix of currencies with different weightings.

**Example of the CFETS*:
Currency weights since
January 1, 2017**

***CFETS = China Foreign Exchange Trade System**

	Weight		Weight
USD	0.224%	THB	0.0291%
EUR	0.1634%	ZAR	0.0178%
JPY	0.1153%	KRW	0.1077%
HKD	0.0428%	AED	0.0187%
GBP	0.0316%	SAR	0.0199%
AUD	0.044%	HUF	0.0031%
NZD	0.0044%	PLN	0.0066%
SGD	0.0321%	DKK	0.004%
CHF	0.0171%	SEK	0.0052%
CAD	0.0215%	NOK	0.0027%
MYR	0.0375%	TRY	0.0083%
RUB	0.0263%	MXN	0.0169%

The Impossible Triangle





Market Participants

Central Banks



Level of active involvement will depend on foreign exchange regime.

Free Floating FX

More Active
Central Banks

Managed FX



- Facilitate government purchase of foreign armaments
- Speculative purposes



International Banks

Market Participants

Central Banks

International
Banks

International
Investors

Day Traders

Multinational
Corporations

Domestic
Corporations

Private
Investors

Tourists



The main participants in foreign exchange markets.

01 **63%**
of market volume.

02 Provide trading
venues and
platforms.

03 Facilitate customer
FX needs and take
on FX positions.



International Investors

Market Participants

Central Banks

International Banks

International Investors

Day Traders

Multinational Corporations

Domestic Corporations

Private Investors

Tourists



Use FX to facilitate the purchase and sale of assets across jurisdictions. May also use the market to hedge current FX exposures or rebalance multi-national portfolios.



Pension Funds



Hedge Funds



Sovereign Wealth Funds



Private Family Offices



Individuals



Prime Brokerage

- Allows non-bank clients to gain better **pricing** and **liquidity**

Day Traders

Market Participants

Central Banks

International
Banks

International
Investors

Day Traders

Multinational
Corporations

Domestic
Corporations

Private
Investors

Tourists



Expanding due to the ease of access to international markets.

Financial asset **transactions** can be initiated at the **click of a button**.

In addition, the leveraged nature of day trading has expanded FX product needs.

Multinational Corporations

Market Participants



Balance varying income and expenditure levels in different currencies.

01

Raising **debt** in one currency.

Capital investment is in another currency.

02

Financing **production costs** in one currency.

Export **income** in another currency.

As multinational corporations **increase in foreign operations**, so does the **complexity** of balancing foreign exchange.

Domestic Corporations

Market Participants

Central Banks

International
Banks

International
Investors

Day Traders

Multinational
Corporations

Domestic
Corporations

Private
Investors

Tourists



Engage in importing and exporting goods and services.

01

Domestic corporations **import to sell domestically.**

02

Manufacturers may **import production materials.**

03

Domestic producer may **export some production.**

04

Domestic companies **may purchase capital goods from abroad.**

Private Investors

Market Participants

Central Banks

International Banks

International Investors

Day Traders

Multinational Corporations

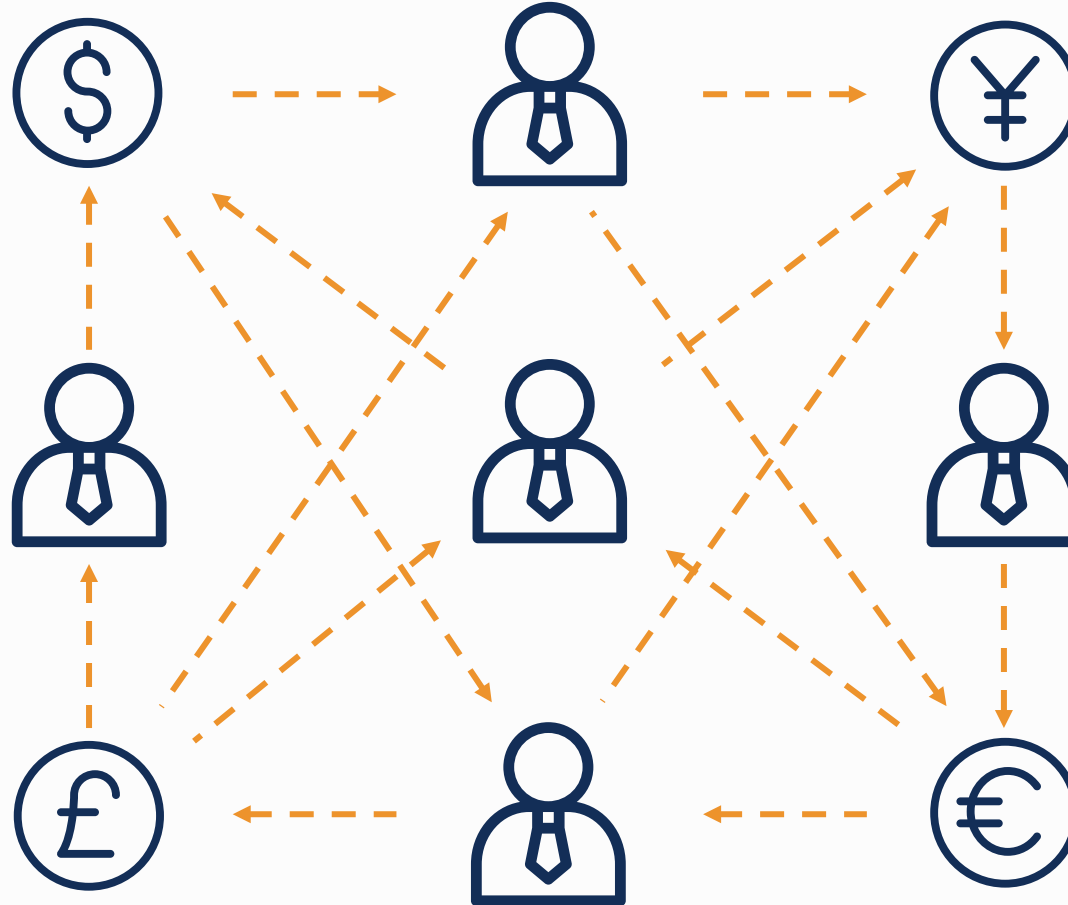
Domestic Corporations

Private Investors

Tourists



Diversify their domestic portfolio and purchase foreign financial assets.



Tourists

Market Participants

Central Banks

International
Banks

International
Investors

Day Traders

Multinational
Corporations

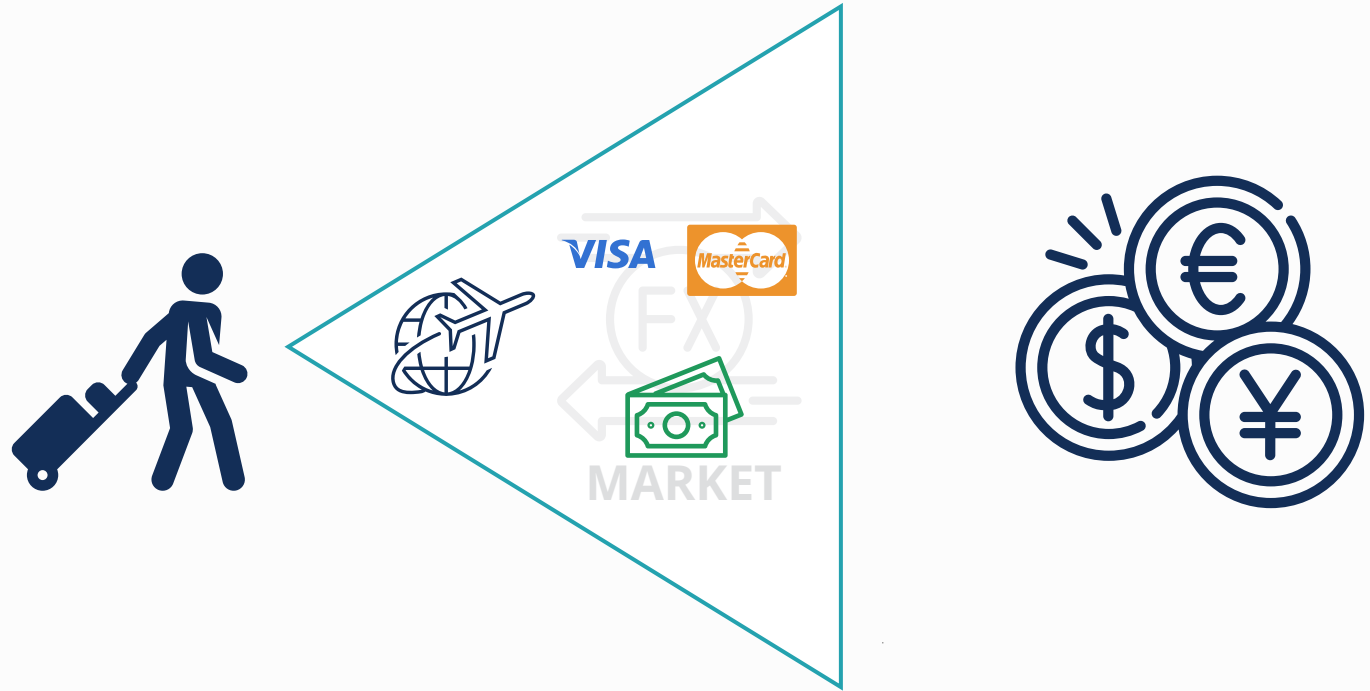
Domestic
Corporations

Private
Investors

Tourists



Purchase foreign currency when traveling abroad.



Individual transactions are **aggregated** by card issuing bank and **transacted in the foreign exchange market**.

Foreign Exchange Brokers

Specialized Foreign Exchange Firms



Helps **small** companies and private **individuals** manage FX needs.

- Lower transaction costs
- Facilitate purchase of foreign properties
- Assist in importation of goods

Interbank Foreign Exchange Brokers



Helps **international banks** execute transactions **between** banks.

- Aims to find two banks with opposite FX requirements
- Digitalization has allowed trades to be executed automatically
- Voice brokers are still highly effective for custom-made requests

Interbank vs. Retail

Interbank



Central Banks



International Banks

Retail



International Investors



Multinational Corporations



Domestic Corporations



Day Traders



Tourists



Specialized Brokers

Market Participants

Four key segments:



1. Domestic and International Banks (63%)

- For their own accounts or for customers, includes market-makers and prime brokerage



3. Corporates (7%)

- Need to pay invoices or hedge their exposure
- "Cost-reduction strategies"



2. Central Banks (1%)

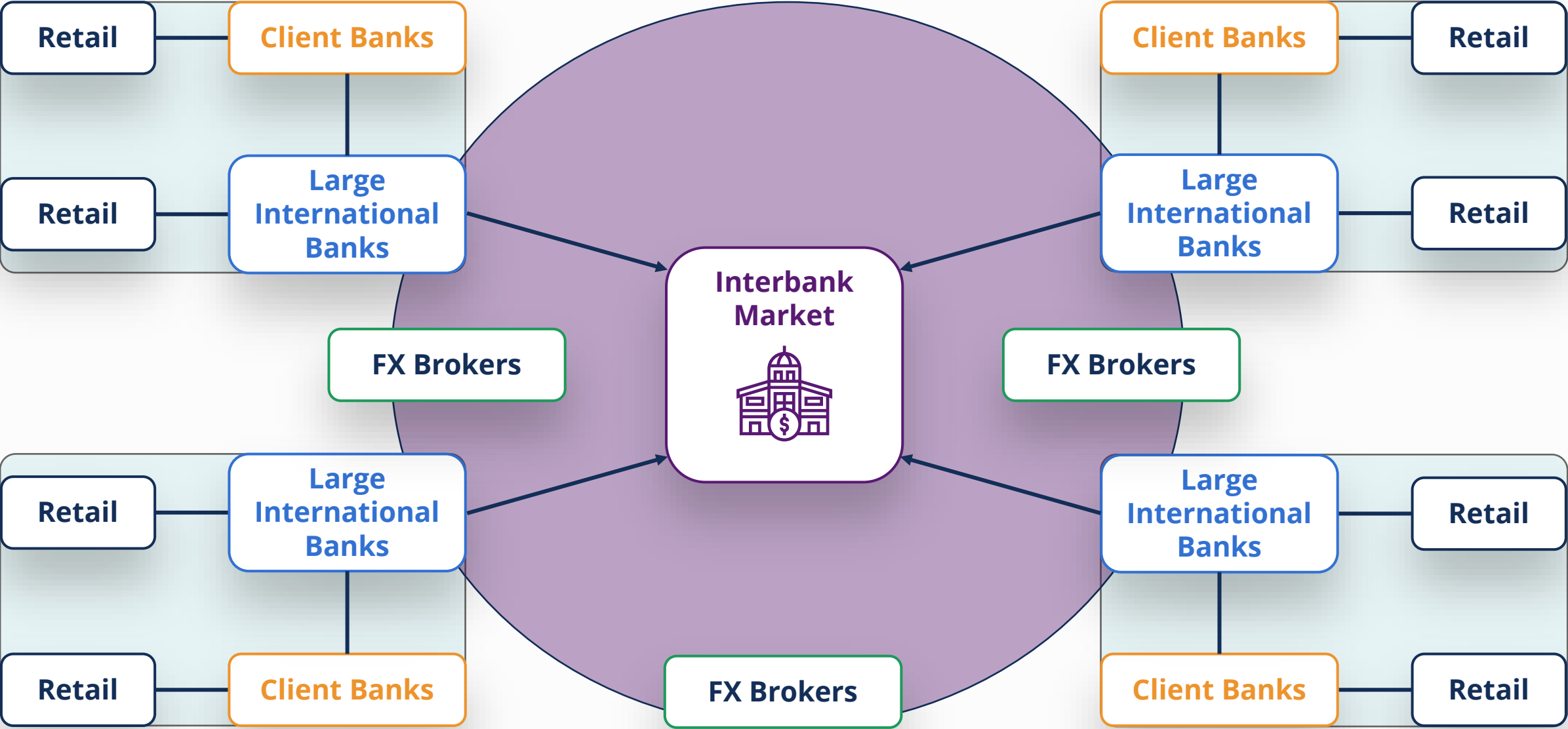
- Intervening to support or suppress the value of its domestic currency



4. Speculators + Investors (21%)

- High-net-worth individuals (HNWI), hedge funds, or proprietary trading desks

All Market Participants





Foreign Exchange **Platforms**

Foreign Exchange Platforms

Foreign exchange platforms represent the market infrastructure that facilitates the execution of foreign exchange transactions.



In Person



Telephone



Retail Digital
Platforms



Bank to Bank
Digital Platforms



Interbank
Platforms

Foreign Exchange Platforms

Foreign exchange platforms represent the market infrastructure that facilitates the execution of foreign exchange transactions.



In Person



Telephone



Retail Digital
Platforms



Bank to Bank
Digital Platforms



Interbank
Platforms



- Prices are **transparent** while **transaction costs are high**
- Transaction costs are **passed to consumers** through
 1. Flat **transaction fee**
 2. **Charging a spread** between execution and wholesale rates

Foreign Exchange Platforms

Foreign exchange platforms represent the market infrastructure that facilitates the execution of foreign exchange transactions.



In Person



Telephone



Retail Digital
Platforms



Bank to Bank
Digital Platforms



Interbank
Platforms



- Calls can be **placed by individuals and companies to banks or between banks** to manage FX exposures
- Often followed by **digital confirmation to log and process the trade**

Foreign Exchange Platforms

Foreign exchange platforms represent the market infrastructure that facilitates the execution of foreign exchange transactions.



In Person



Telephone



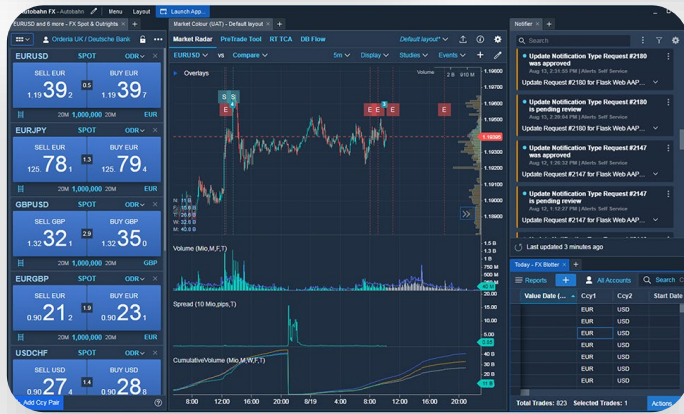
Retail Digital
Platforms



Bank to Bank
Digital Platforms



Interbank
Platforms



- Electronic trading platforms provided by international banks
- Provide live prices that can **confirm and process transactions** at the click of a button
- Transaction cost **can be manipulated by adjusting transactions fees** to allow banks to differentiate

Source: Autobahn Deutsche Bank

Foreign Exchange Platforms

Foreign exchange platforms represent the market infrastructure that facilitates the execution of foreign exchange transactions.



In Person



Telephone



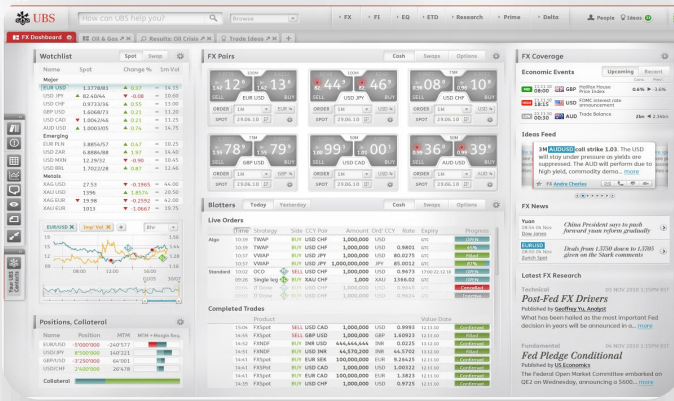
Retail Digital
Platforms



Bank to Bank
Digital Platforms



Interbank
Platforms



Source: UBS Neo

- Some banks have **specialized in the provision of certain currencies** while offloading others directly into the market
- International Banks have **installed in-house digital platforms into client banks**, capturing more market share

Foreign Exchange Platforms

Foreign exchange platforms represent the market infrastructure that facilitates the execution of foreign exchange transactions.



In Person



Telephone



Retail Digital
Platforms



Bank to Bank
Digital Platforms



Interbank
Platforms

































FX Top of Book

EUR/USD (11/04/18)		EUR/GBP (11/04/18)		EUR/JPY (11/04/18)		GBP/USD (11/04/18)		GBP/JPY (11/04/18)	
Self EUR	Buy EUR	Self EUR	Buy EUR	Self EUR	Buy EUR	Self EUR	Buy EUR	Self USD	Buy USD
1.19	1.19	1.65	1.65	0.85	0.85	7.74	7.75	722.	723.
240	280	680	730	820	840	84	77	600	600
								940	960
USD/CAD (11/04/18)		USD/JPY (11/04/18)		AUD/USD (11/04/18)		AUD/JPY (11/04/18)		NZD/USD (11/04/18)	
Self USD	Buy USD	Self USD	Buy USD	Self AUD	Buy AUD	Self AUD	Buy AUD	Self NZD	Buy NZD
1.24	1.24	109.	109.	1.289	1.290	72.68	72.92	0.96	0.96
690	740	130	170	500	500	750	960	670	740
								840	080
AUD/USD (11/04/18)		AUD/JPY (11/04/18)		NZD/USD (11/04/18)		NZD/JPY (11/04/18)		CAD/USD (11/04/18)	
Self AUD	Buy AUD	Self AUD	Buy AUD	Self NZD	Buy NZD	Self CAD	Buy CAD	Self CAD	Buy CAD
23.3	24.2	84.	84.	56.32	56.55	0.74	0.74	907.	908.
40	95	610	650	55	69	350	520	77	93
								490	510
CAD/USD (11/04/18)		CAD/JPY (11/04/18)							
Self CAD	Buy CAD	Self CAD	Buy CAD						
6.81	6.84	24.6	24.6						
110	110	40	60						

Source: Refinitiv FXall

- Specialist trading platforms such as **EBS** and **Refinitiv** only accessible to **interbank counterparties**
- Refinitiv system allowed banks to **directly call** and ask for a price
- **Interbank liquidity relationships** are built open reciprocity

Chicago Mercantile Exchange (CME)

MONTH	OPTIONS	CHARTS	LAST	CHANGE	PRIOR SETTLE	OPEN	HIGH	LOW	VOLUME	UPDATED
MAR 2021			1.20895	+0.0039	1.20505	1.20525	1.20905	1.19945	186,418	12:17:35 CT 02 Mar 2021
APR 2021			1.2097	+0.00365	1.20605	1.20615	1.2097	1.2014	305	12:09:28 CT 02 Mar 2021
MAY 2021			1.20945	+0.0027	1.20675	1.2061	1.20945	1.20275	66	10:47:40 CT 02 Mar 2021
JUN 2021			1.21135	+0.00385	1.2075	1.2077	1.2114	1.2019	11,645	12:17:11 CT 02 Mar 2021
JUL 2021			-	-	1.2084	-	-	-	0	18:42:47 CT 01 Mar 2021
SEP 2021			1.2078	-0.0021	1.2099	1.2072	1.2078	1.20565	99	08:22:17 CT 02 Mar 2021
DEC 2021			1.2101	-0.00215	1.21225	1.20785	1.2101	1.20785	28	08:22:17 CT 02 Mar 2021
MAR 2022			1.2191	+0.0041	1.2150	1.2191	1.2191	1.2191	2	12:09:28 CT 02 Mar 2021
JUN 2022			1.2163	-0.0015	1.2178	1.2163	1.2163	1.2163	2	09:06:07 CT 02 Mar 2021
SEP 2022			-	-	1.22075	-	-	-	0	08:22:17 CT 02 Mar 2021
DEC 2022			-	-	1.2235	-	-	-	0	08:22:17 CT 02 Mar 2021
MAR 2023			-	-	1.22625	-	-	-	0	18:42:00 CT 01 Mar 2021
JUN 2023			-	-	1.2319	-	-	-	0	18:42:15 CT 01 Mar 2021
SEP 2023			-	-	1.23715	-	-	-	0	18:43:54 CT 01 Mar 2021
DEC 2023			-	-	1.2424	-	-	-	0	18:42:41 CT 01 Mar 2021
MAR 2024			-	-	1.2476	-	-	-	0	18:42:14 CT 01 Mar 2021

Source: CME Group

01

Contracts traded digitally and executed only during **CME hours**.

02

Contracts have **fixed** notional values (such as 125,000 EUR).

03

Contracts expire on **specific dates**.



Limitations

- Notional amounts are fixed
- Settlement dates are pre-specified



Settlement **Process**

Foreign Exchange Settlement Process

During the initial settlement process, **each counterpart** will **send each other** their **trade confirmation**.

Check the following points to ensure trades agree:

01 Currency pair

02 The side

03 The rate

04 The delivery date

05 Counterpart banking details



Although most errors are easily amended, **delays in correcting some errors can cause significant losses.**

Once the trade is in **agreement**, the **delivery process** can begin.

SWIFT

Society for Worldwide Interbank Financial Telecommunications (**SWIFT**) code provides the **exact details for settlement**.

Timely Settlement

- Funds received to appropriate accounts as requested.

Failure to Send Funds

- Counterparty NOSTRO account becomes overdrawn.
- Punitive interest charges on overdrawn amount.

ISDA

An **International Swaps and Derivatives Association** (ISDA) agreement covers **failure to deliver** in extreme cases.



The non-defaulting counterparty can terminate remaining exposures.



Legal recourse to defaulting party for associated costs.

People's Republic of China

Once authorities allowed ISDAs, the RMB became one of the most traded currencies.



Market Drivers

Short Term Drivers



Short Term

Economic News and Releases

- Trade data
- Interest rate decisions
- Employment data

Individual Capital Flows

- Individual transactions of financing foreign purchases

Central Banks

- Open market operations
- Fulfilling international commitments

Speculation

- Intraday positions
- “Squaring” (ensure net zero position) daily

Technical Analysis

- Observing defined price range
- Traders participate where price ranges are breached

Medium Term Drivers

Medium Term



Capital Flows

- Funds to purchase or sell financial assets
- Foreign direct investment

Interest Rate Policy

- Domestic interest rates
- Foreign interest rates

Balance of Payments

- Net flows of imports and exports
- Surplus nations have positive currency demand
- Deficit nations have negative currency demand

Taxation

- Tax regimes may influence capital flow
- Low tax jurisdictions may attract capital
- High tax jurisdictions may dissuade capital

Long Term Drivers

Long Term



Inflation



- **Increases** in the price level of goods/services.
- **Decrease** in purchasing power.



Deflation

- **Decreases** in the price level of goods/services (negative inflation).
- **Increase** in purchasing power.

Stagflation



- **High** inflation and **slow** economic growth.
- Over the **longer-term**, differences in domestic price levels will influence **exchange rates**.



Foreign Currency Debt Load

National currencies with **high debt** levels are prone to **depreciative effects**.

1. Weak domestic **economy** will prompt **debt repayment** concerns.
2. Weak domestic **currency** leads to struggle in **foreign debt repayment**.
3. **Capital repatriation** can lead to greater currency **weakening**.

Purchasing Power Parity

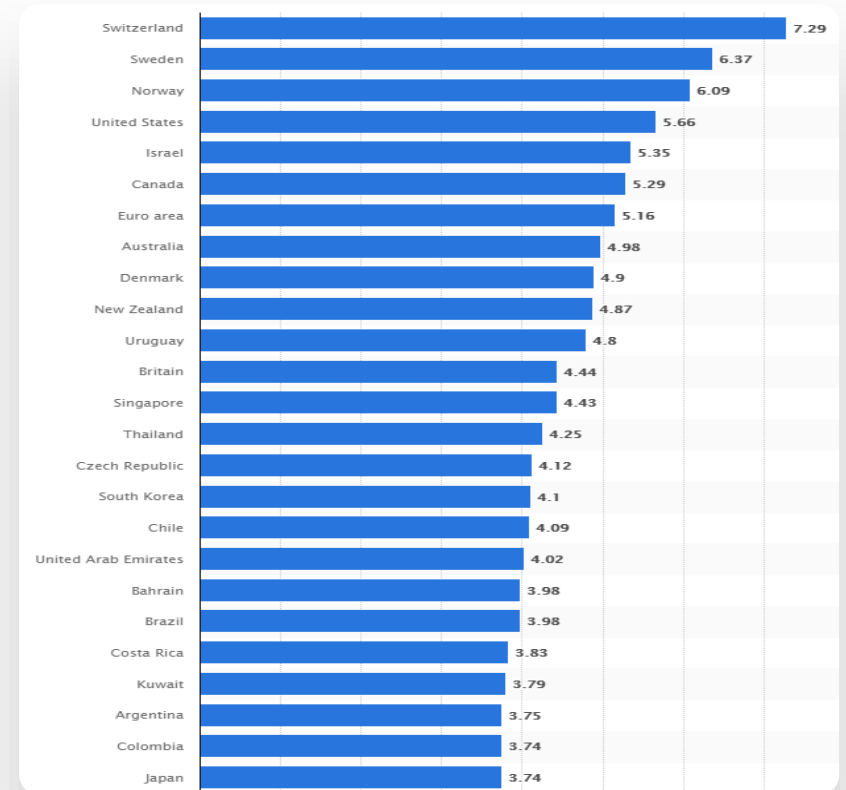
Purchasing power parity: the prices for the **same goods** should be the **same across different regions** when adjusted for exchange rates.

However:

Inflation is not considered.

Many goods/services **cannot be freely transferred** across countries or regions.

**Global price (\$USD) of a Big Mac
(Jan. 2021)**



Source: Statista



Regulatory Environment

Regulatory Environment



**Not subject to
formal regulation.**



Association Cambiste Internationale (ACI)

- Founded in 1955 in Paris
- Trade body representing the interests of the foreign exchange market
- Created FX Global Code and ethical code of conduct to self regulate markets
- Breach of the code can lead to the withdrawal of memberships and trading licenses (no legal sanctions)

Regulation

Pre-Banking Crisis



Self regulation was sufficient.

Proprietary positions were acceptable.



Post Banking Crisis

Self-Regulation



- Imposed regulations on the FX market
- Breaches of restrictions are legally sanctionable
- Defined market practices that were no longer tolerable

Proprietary Positions



- Speculative nature represented moral hazard for governments
- Banks may hold FX positions for market making purposes

Spoofing

Spoofing is a type of market manipulation carried out in two primary methods:

Influence demand/supply perception by placing large market order with no intention to execute.

Precede trades of large volume directly through banks, with opposite buy/sell orders in market.



Spoofing

EUR/USD	Buy Orders	Sell Orders
\$0.8047	0	600,000
\$0.8046	0	700,000
\$0.8045	0	500,000
\$0.8044	0	800,000
\$0.8043	0	900,000
\$0.8042	800,000	0
\$0.8041	500,000	0
\$0.8040	300,000	0
\$0.8039	150,000	0
\$0.8038	350,000	0
\$0.8037	900,000	0



EUR/USD	Buy Orders	Sell Orders
\$0.8047	0	600,000
\$0.8046	0	700,000
\$0.8045	0	500,000
\$0.8044	0	800,000
\$0.8043	0	900,000
\$0.8042	800,000	0
\$0.8041	500,000	0
\$0.8040	300,000	0
\$0.8039	150,000	0
\$0.8038	350,000	0
\$0.8037	6,500,000	0

Front Running

The practice of executing trades using advanced knowledge of client orders.

Orders can be placed slightly in advance of a client's defined order.

A trader may sell a currency when informed that a customer wishes to sell.



Client

Can I buy
500 EUR at
1.2000?



FX Broker

Sure, I will
put that
order in.



First Order: FX broker bids for 10 EUR at 1.2001.

Second Order: FX broker places the order for 500 EUR for their client.

Information Sharing

The sharing of sensitive market information between banks is prohibited.

An information cartel may share information on various bank's order books.

Select few banks would see outstanding market orders and can influence future prices.

