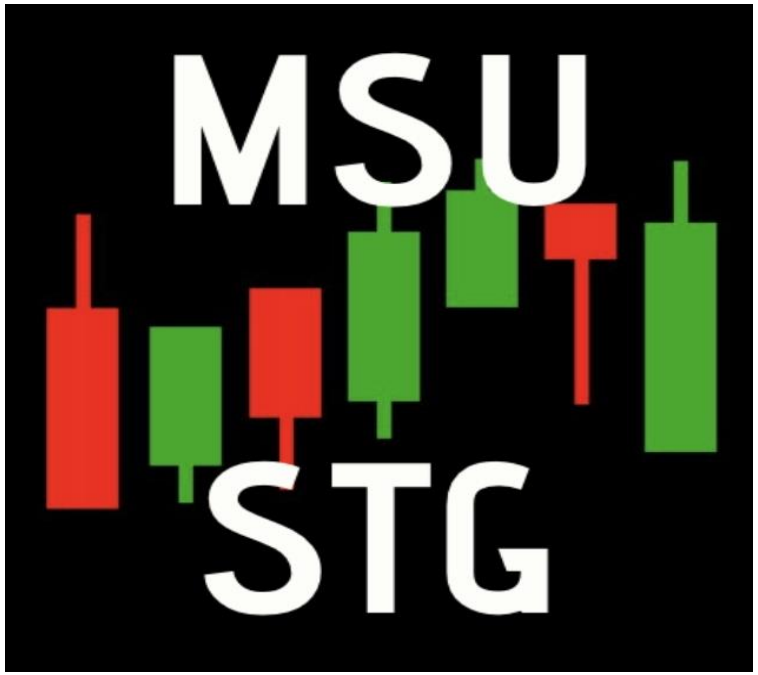
Student Trading Group
Forex

March 21, 2024



Agenda

- Market update
- Open Discussion
- Forex (FX)
- Quant FX
- Q&A
- MW Investing Competition

Market Update

- Berkshire Hathaway speeds up stock buybacks(repurchase of own shares). Through last Friday though, Hathaway share price was up 14% this year, 2x the gain for S&P500.
- Powell remarks the Fed is seeking to reduce the size of its holdings. (3 rate cuts in 2024)
- S&P 500 new ATH at $5,261
- Reddit (RDDT) goes public with IPO with a market value of $6.4 billion. Today was first full day of trading. Big surge from opening share price of $34. Should you add to portfolio?

Open Discussion

- Recent Trades?
- News?
- Predictions?
- Economic Data?
- Earnings?
- Etc.

Forex

Forex, also referred to as FX, is a global marketplace where different currencies are traded.

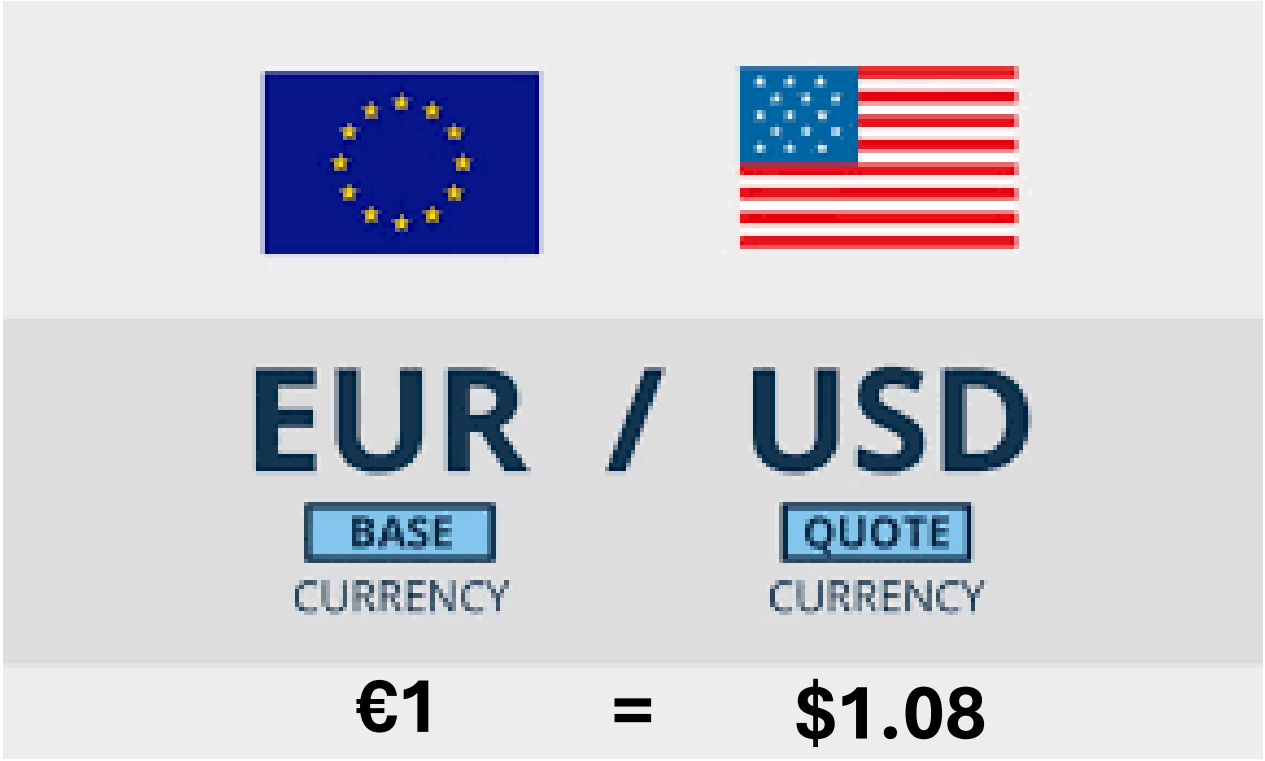
Trading one currency for another.

Why Forex?

- Speculation regarding events that would cause one currency to weaken or strengthen.
- Highly macroeconomic
- Extended trading hours
- Forex can be traded based on pure technical analysis and price action.
- High leverage
- Tax advantages (60/40 Rule)

Currency Pairs

- Currencies are traded in pairs such as EUR/USD, USD/JPY, GBP/USD, etc.
- Each pair has a **Base** currency and a **Quote** currency
- Base currency is listed **first**, Quote currency is listed **second**
- The exchange rate of the pair indicates how much of the quote currency is needed to purchase **one** unit of the base currency



Currency Pair Ordering

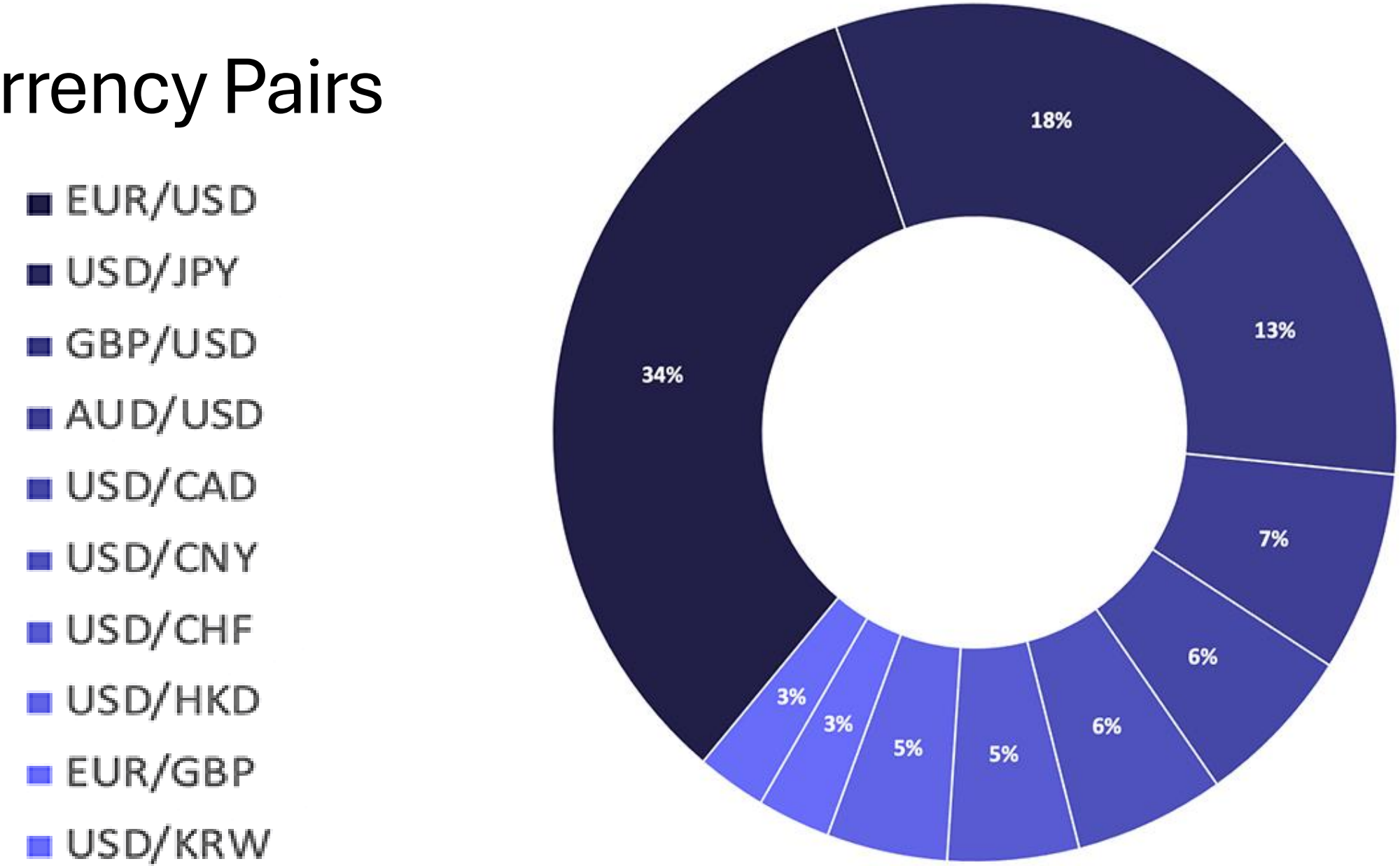
Major currencies are ranked on a priority list

When quoting two currencies, the one with higher priority will be the base, and the one with lower priority will be the quote

Euro will always be listed first as it is highest priority, Yen will always be last as it is lowest priority

Currency	Code
European euro	EUR
British Pound	GBP
Australian Dollar	AUD
New Zealand Dollar	NZD
U.S. Dollar	USD
Canadian Dollar	CAD
Swiss Franc	CHF
Japanese Yen	JPY

Currency Pairs



Forex Example

The currency pair EUR/USD currently has an exchange rate of 1.08

This means...

1.08 USD (quote currency)

can be exchanged for ...

1 Euro (base currency)

Forex Example

If the EUR/USD exchange rate increased to 1.10, it means that the Euro has **strengthened** relative to the US Dollar.

If the EUR/USD exchange rate decreased to 1.05, it means that the Euro has **weakened** relative to the US Dollar.

A good way to think about this is

- If the exchange rate **increases**, the base currency **strengthens** relative to the quote
- If the exchange rate **decreases**, the base currency **weakens** relative to the quote

How Exchange Rates Move

Exchange rates are primarily driven by Macroeconomics

- Inflation
  - If country A experiences high inflation, while country B remains low and constant, the currency of country A will decrease in value relative to country B
- Economic Performance
  - Countries with stronger economic performance hold greater investor confidence than weak or declining countries
- Trade
  - If a country experiences a sharp decrease in net exports (NX), GDP will fall, which can affect relative value of a country's currency
- News/Politics
  - Large scale news or politics can cause rapid and sharp changes in a currency's relative value.

Long vs Short Positions

As you know long typically means buying, and short typically means selling. But how do these terms relate to currency pairs?

Long

- Buying base currency and selling quote currency

Short

- Selling base currency and buying quote currency

Forex Problem

A Trader believes that due to tariffs and trade wars in China, the strength of the Yuan will fall relative to the US Dollar. How would this trader enter a trade on the USD/CNY currency pair?

The trader would enter a Long Position (Buy)

Since the trader expects the quote currency to weaken, the exchange rate would increase, therefore making a long position profitable.

Forex Problem

The previously mentioned trader entered this position for 10,000 units at an exchange rate of $7.19 and sold at an exchange rate of $7.23. What was this trader's profit?

($7.23 - $7.19)*10,000 = $400

What would the profit be with a 25x leverage

$400 * 25 = $10,000

Where is Forex Traded

Hedge Funds

- Citadel

Quants/Prop

- IMC

Sales & Trading

- CITI

Retail Traders

- You

Where you can trade FX

- IG
- Interactive Brokers
- Saxo
- CMC Markets
- FOREX.com
- TD Ameritrade
- XTB
- eToro

Questions?

(Before we move on)

Arbitrage

The simultaneous buying and selling of securities to take advantage of differing prices for the same asset.

Generally, risk free, with very low return of investment.

If you can buy something for $1 and immediately sell it for $1.01, there exists a $0.01 arbitrage.

Arbitrage within FX

If different brokerages in different countries are offering a slightly different conversion rate, an arbitrage opportunity will arise.

FX arbitrage is quant dominated and traded very fast.

3 primary types

1. 2 Point Arbitrage (Locational)
2. 3 Point Arbitrage (Triangular)
3. Interest Arbitrage (Covered & Uncovered)

2 Point Arbitrage

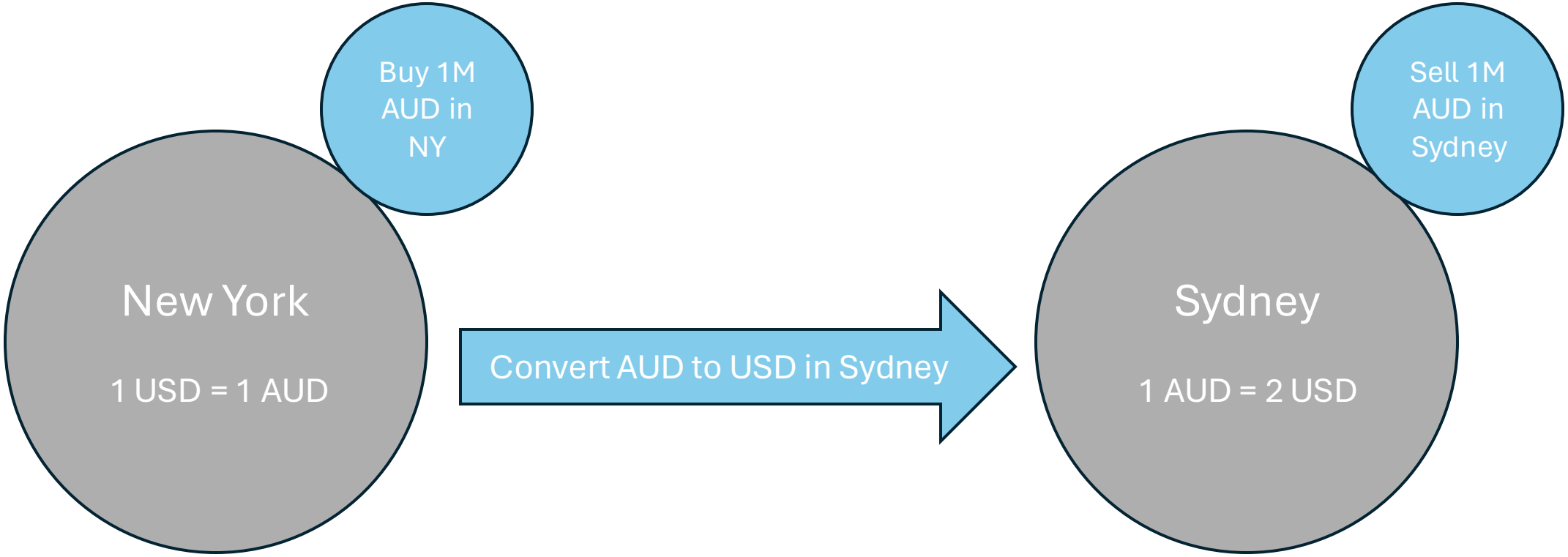
Anytime two separate banks, institutions, or countries are offering exchange rates that are not perfectly identical, there will be an arbitrage opportunity.

Code example

```
if BankA != BankB:
```

Grossly Unrealistic Example

2 Point Arbitrage



1M USD → 1M AUD → 2M USD

2M USD – 1M USD = 1M USD Profit

3 Point Arbitrage

3 currencies involved

If you know 2 rates, the third one is implied, if the offered rate differs from the implied rate, there will be an arbitrage opportunity.

£1 = ¥2 ¥4 = $1 $1 = £? ? = 2

Code

if rate in BankC != “$1 = £2”

****Grossly Unrealistic Example****

3 Point Arbitrage

Use 1M USD to buy 500K AUD

Use 500K AUD to buy 2M EUR

Use 2M EUR to buy 2M USD

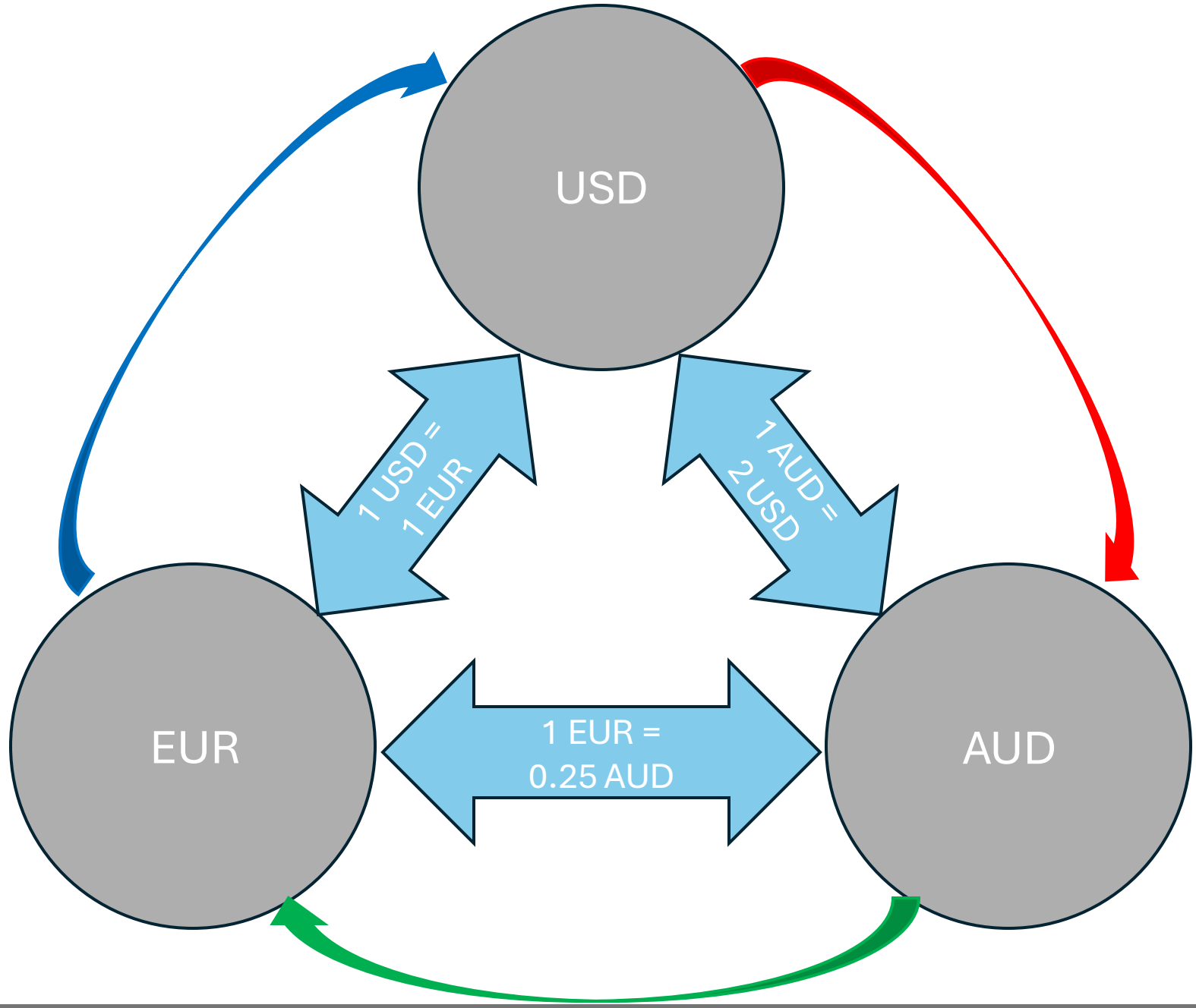
NOTICE…

Use 1M AUD to buy 4M EUR

Use 4M EUR to buy 4M USD

Use 4 M USD to buy 2M AUD

It does not matter where you start, all outcomes will be 2x profit



FX Arbitrage

Risk free 100% returns sound too good to be true?

This is because **they are!**

Arbitrages within the FX market generate small fractions of a percent. (NY shows EUR/USD = 1, AUS shows EUR/USD = 1.001)

(($10,000,000 * 1.001)/ 1) – $10,000,000 = $10,000

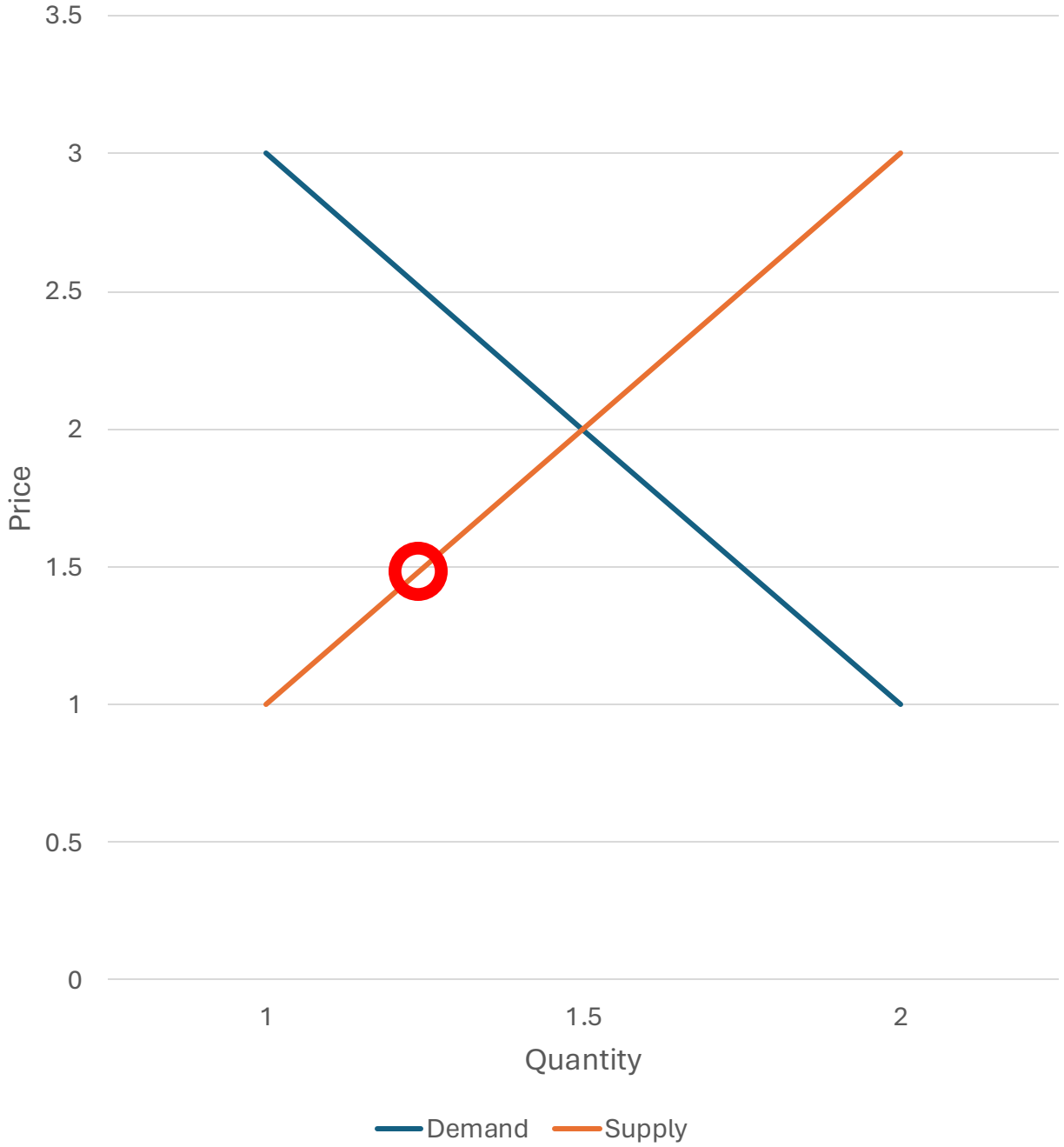
FX Arbitrage

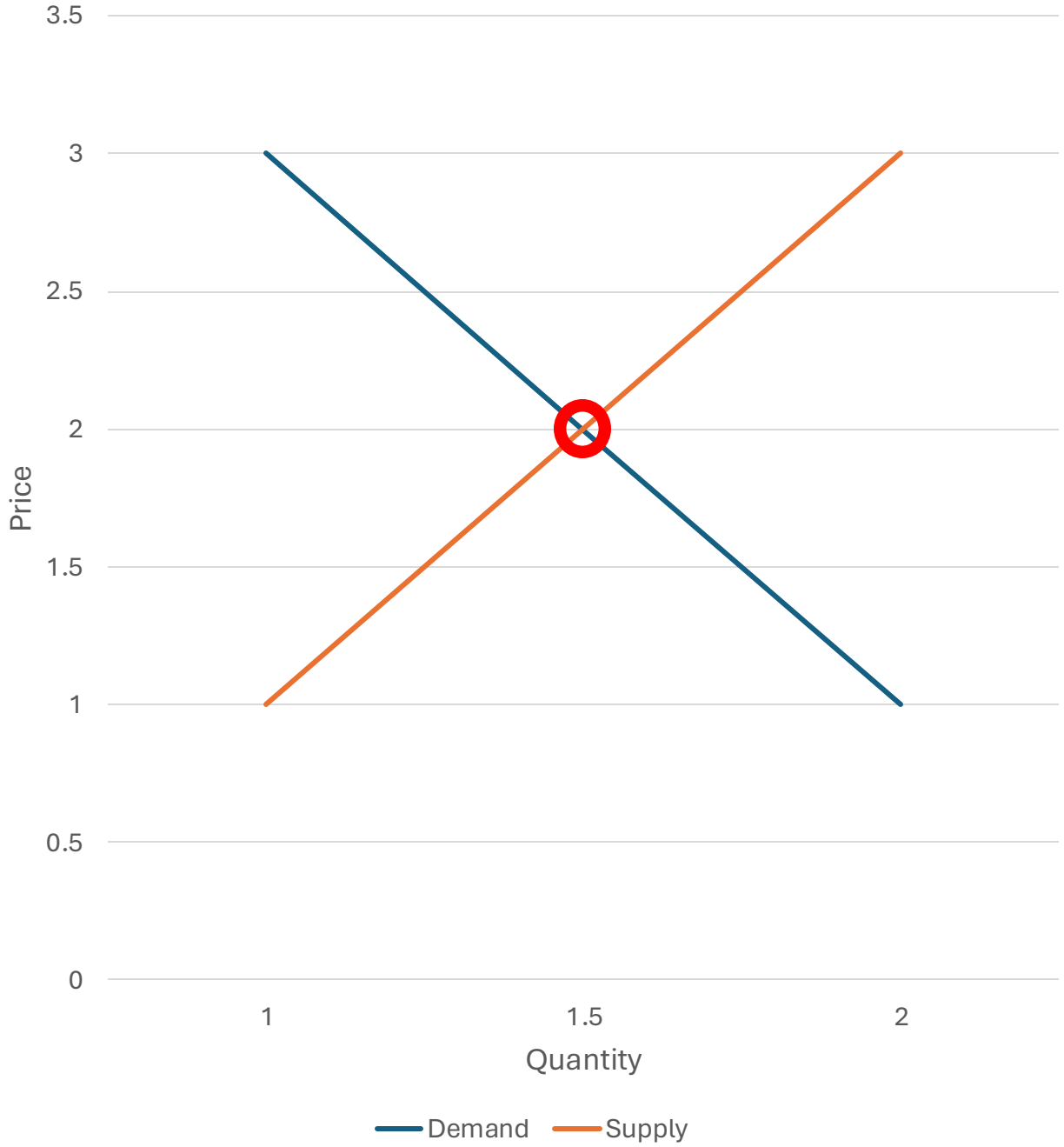
If an imbalance that allows instant, risk free profit exists in the market, it won't exist for long.

Traders around the world will see this opportunity and begin buying up all the currency from this bank, leading to much greater demand than supply.

This will continue until an equilibrium is reached and the trade is no longer profitable.

(Large buyer presence, with low sell volume drives prices up)


XYZ/ZYX During Arbitrage
3.5
3
2.5
2
1.5
1
0.5
0
Price
1
1.5
2
Quantity
Demand
Supply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Quantity
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How Arbitrage is Traded

Most arbitrage is done by High Frequency Trading firms and hedge funds.

Complex algorithms are built to constantly scan the market for arbitrage opportunities and trades are entered automatically.

Within arbitrage, whoever has the fastest, most efficient algorithm, will produce the greatest profit.

FX2.py

FX2.py > ...

```python
def find_arbitrage(currency_pairs, exchange_rates):
    profitable_trades = []
    for pair in currency_pairs:
        base_currency, quote_currency = pair
        exchange_rate = exchange_rates[pair]
        inverse_rate = 1/exchange_rate

        #check for 2 point arbitrage
        if inverse_rate > 1:
            profitable_trades.append((pair, (quote_currency, base_currency), inverse_rate))

        #check for 3 point arbitrage
        for pair2 in currency_pairs:
            if pair2 != pair:
                base_currency2, quote_currency2 = pair2
                if quote_currency == base_currency2:
                    exchange_rate2 = exchange_rates[pair2]
                    triangular_arbitrage_rate = exchange_rate * exchange_rate2
                    if triangular_arbitrage_rate > 1:
                        profitable_trades.append((pair, pair2, triangular_arbitrage_rate))

    return profitable_trades
```

Q & A

MarketWatch Investing Competition

- https://www.marketwatch.com/games/msu-stg-ss24
- ID: MSU STG SS24
- Password: msustg

Discord